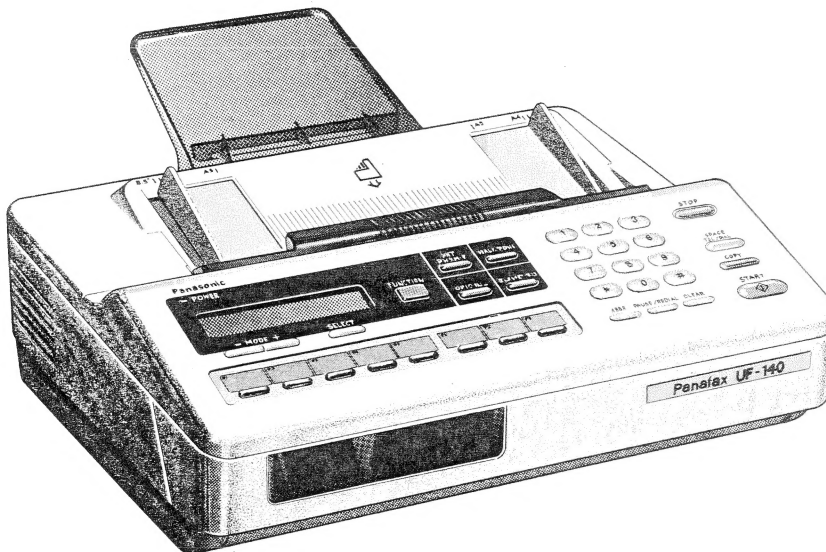


CCITT Group 3/Group 2 Facsimile

Panafax UF-140

Service Manual



Matsushita Graphic Communication Systems, Inc.

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CCITT Group 3/Group 2 Facsimile

Panafax UF-140

Service Manual

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- Chapter 2 BRIEF OPERATION GUIDE
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Chapter 1 GENERAL DESCRIPTION

CHAPTER 1 GENERAL DESCRIPTION

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CHAPTER 1 GENERAL DESCRIPTION

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CHAPTER 1 GENERAL DESCRIPTION

1.1 General

- (1) The unit is high/medium speed facsimile transceiver designed to meet the CCITT Group 3 (MH/MR) and Group 2 Recommendations.
- (2) The unit is capable of transmitting, receiving or polling documents over the Public Switched Telephone Network (PSTN).
- (3) The unit is a very versatile and labour saving facsimile providing automatic dialing, deferred communication, multi-station polling, half tone, transmission reservation, etc.
- (4) High quality and reliability are achieved by using solid-state scanning technology.
- (5) Thermal recording method produces no fumes or odors of an annoying or toxic nature.
- (6) The unit is a compact facsimile transceiver easy to operate and maintain.

1.2 Functions and Features

- (1) Automatic Mode Selection (AMS)
The transmission speed and communication mode are automatically selected based on the receiver's capability.
- (2) Automatic Fall Back
This function automatically selects the appropriate transmission speed of 9600, 7200, 4800 or 2400 bps in Group 3 mode according to the telephone line condition.
- (3) Automatic Dialing
As many as 70 stations can be quickly dialed on the key pad with simple key operation by One-Touch dialing, Abbreviated dialing and Programmed dialing. Any other stations can be dialed from the key pad by entering the full telephone number.
 - (a) One-Touch Dialing
 - (b) Abbreviated Dialing
 - (c) Programmed Dialing

Any group of stations registered in the memory is available as One-Touch Dialing with programmed functions.
- (4) Redialing
If the line is busy or there is no response from the called station, the unit automatically redials the last number dialed twice with three minutes interval. Pressing **REDIAL** causes redialing of the last number immediately.
- (5) Automatic Start
The unit automatically starts transmission or polling upon the detection of answer signal from the called station after dialing. Pressing **START** is not required.
- (6) White Line Skip (MWS)
White line skip function achieves faster transmission by skipping white lines on the original document.
- (7) Short Protocol
Short Protocol reduces transmission time by shortening Phase-B and Phase-D.

- (8) **Deferred Communication**
The built-in 24-hour timer allows transmission, polling, or multi-station polling at desired time.
- (9) **Automatic Back Ground Control (ABC) and Original Contrast Selection**
This function produces the best copy quality contrast automatically. And also, three grades (NORMAL, DARK and LIGHT) density can be selected according to the contrast of original document.
- (10) **Halftone**
For transmission of the gray-shaded or photographic documents, this function ensures high quality reproduction.
- (11) **A4 Scanning**
Up to A4 width documents are scanned and transmitted.
- (12) **Automatic Document Feeder (ADF)**
The unit's document feeder can handle up to 5 original documents.
- (13) **Total Document Page Setting**
This feature allows the user to set the total number of documents to be transmitted. This is printed on each page of copy received to ensure better management by the receiver.
- (14) **Polling and Turnaround Polling**
The receiving station polls the remote unattended station to retrieve the document awaiting transmission.
The turnaround polling function permits transmitting station to poll the document upon completion of transmission.
To prevent unauthorized polling, a 4-digit password is provided which is checked by the unattended station before a document is transmitted.
- (15) **Multi-Station Polling**
The receiving station can sequentially poll as many as 70 remote unattended stations to retrieve the document awaiting transmission with a simple key operation.
- (16) **Voice Contact**
The voice contact is available after the transmission or reception by pressing **TEL/DIAL** while communication is in progress.
- (17) **Call Back Message**
If the remote station does not respond to a request of voice contact, the message which says that the voice contact was requested will be printed out, with the same format as the individual transmission journal, at the remote station.
- (18) **Header Print**
The header appears at the top of each page of copy received and shows an alphanumeric logo (up to 25 characters), transmission date and time, and page number.
- (19) **Abbreviated Number List**
The abbreviated number list shows all registered telephone numbers and their names.
This list can be printed out at any time with key operation.
- (20) **Journal Print**
The journal report provides information on all transactions such as pages transmitted or received, start date and time, communication results, identification, etc. It is automatically printed out every 32 transactions or it can be requested at any time by using the control panel. In latter case, the journal report contains details of the last 32 transactions.

- (21) **Individual Transmission Journal**
 Optionally after every transmission, the transmission record such as date and time, number of transmitted documents, identification, transmission results, etc. is automatically printed out. Also, it can be obtained manually by using the control panel.
- (22) **Multi-Station Polling Journal**
 After the end of a multi-station polling, journal print shows the results of the transmission. This journal will be useful when attempting the communication again with any station whose cannot communicate because of busy line or no response.
- (23) **Destination Verification**
 The destination can be verified by the LCD display which shows the identification number of unit, telephone number or name of called party.
- (24) **Self Diagnostic and Self Test**
 Self diagnostic feature provides the information code, indicating problems such as line difficulties, jammed document or exhausted recording paper to the operator on the LCD display or journal and the diagnostic code on the journal which shows communication status for field service personnel. Self test feature permits the operator to make a local copy of original to examine the scanner and thermal recording head without transmitting or receiving document over the telephone line. And also the test pattern is printed out to check the thermal recording head.
- (25) **Relayed Transmission Request**
 If the center machine is prepared, documents will be relayed to the multiple destinations through the center machine. This unit is capable of transmitting documents to the center machine and makes it relay the documents to the multiple destinations.

1.3 Specifications

UF-140 conforms to the CCITT Recommendation T30.

Note:

Normal specs represent the design specs; all units should be able to approximate these — some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit perform to worse than any limit spec.

1.3.1 Transmitter

- | | |
|---------------------------------------|--|
| (1) Document size
(Width × Length) | : Normal 210 mm × 297 mm
Max. 220 mm × 1,000 mm (with operator's assistance)
Min. 148 mm × 70 mm |
| (2) Document thickness | : Single page 0.06 mm to 0.15 mm
Multiple pages 0.08 mm to 0.13 mm |
| (3) Automatic document feeder | : Built-in, up to 5 sheets. |
| (4) Scan line length | : A4
1728 scan elements along a line length of 215 mm ± 1% |
| (5) Effective scanning width | : Group 3 208 mm (A4 size: full width)
Group 2 205 mm (A4 size: full width) |

- (6) Synchronization : Group 3 Transmission synchronization
Group 2 Pre-document synchronization
- (7) Scanning method : Horizontal Flat-bed scanning with contact type image sensor
Vertical Intermittent scanning (G3) and steady scanning (G2) by stepper motor
- (8) Resolution (Horizontal × Vertical) : Group 3: SUPER FINE: 8 pels/mm × 15.4 lines/mm
FINE : 8 pels/mm × 7.7 lines/mm
STANDARD : 8 pels/mm × 3.85 lines/mm
Group 2: 6 Hz : Nominal 3.85 pels/mm × 3.85 lines/mm
- (9) Transmission speed : Group 3 9600/7200/4800/2400 bps
Group 2 3 minutes
- (10) Coding scheme : Modified Huffman and Modified READ, with MWS
- (11) Half tone : 16 shades of gray (Electrically)
- (12) Automatic document feeder : Built-in, up to 5 sheets.

1.3.2 Receiver

- (1) Recording paper size : 210 mm (W) × 30 m (L)
- (2) Scan line length : A4
1728 scan elements along a line length of 215 mm ± 1%
- (3) Effective recording width : Group 3 208 mm
Group 2 205 mm
- (4) Recording method : Thermal recording with solid-state thermal recording head
- (5) Resolution (Horizontal × Vertical) : Group 3: SUPER FINE: 8 pels/mm × 15.4 lines/mm
FINE : 8 pels/mm × 7.7 lines/mm
STANDARD : 8 pels/mm × 3.85 lines/mm
Group 2: 6 Hz : Nominal 3.85 pels/mm × 3.85 lines/mm

1.3.3 Line Control Block

- (1) Communication facility : Public Switched Telephone Network (PSTN) or the equivalent
- (2) Line coupling : Direct coupling (Built-in LCU)
- (3) Modem : Group 3 QAM, PhM and FSK
(V.29, V.27ter with fall back function and V.21)
Group 2 AM-PM-VSB

- (4) Carrier frequency : Group 3 1700 Hz (9600/7200 bps)
1800 Hz (4800/2400 bps)
Group 2 2100 Hz
- (5) Control signal (Group 2) : 2100 Hz CED, GC
1850 Hz GI
1650 Hz CFR, MCF
1100 Hz LCS, EOM
462 Hz PIS
- (6) Output level : 0 dBm to -15 dBm adjustable by 1 dB step
- (7) Input sensitivity : -5 dBm to -43 dBm
- (8) Input & Output impedance : 600 ohms (nominal)

- (1) Dialing signal : 10 pps/20 pps/DTMF
- (2) Dialing method : See Table 1.1.

One-Touch Dialing	Up to 5 stations (01 to 05)
Abbreviated Dialing	Up to 70 stations (ABBR 01 to ABBR 70) See note
Programmed Dialing	Up to 3 combinations of stations and functions (P1 to P3)
Direct Dialing	The number of digits is unlimited.

- (3) Programmable memory capacity
Up to 70 telephone numbers: Telephone number Up to 36 digits
Station name Up to 15 characters
- (4) Redialing
— Automatically redials the last number dialed five times with 3-minute interval.
— By pressing **REDIAL** button, the last number dialed is immediately redialed.

- (1) Power requirement : 120 V version: AC 98 to 132 V, 50/60 Hz, single phase
220 V version: AC 180 V to 264 V, 50/60 Hz, single phase

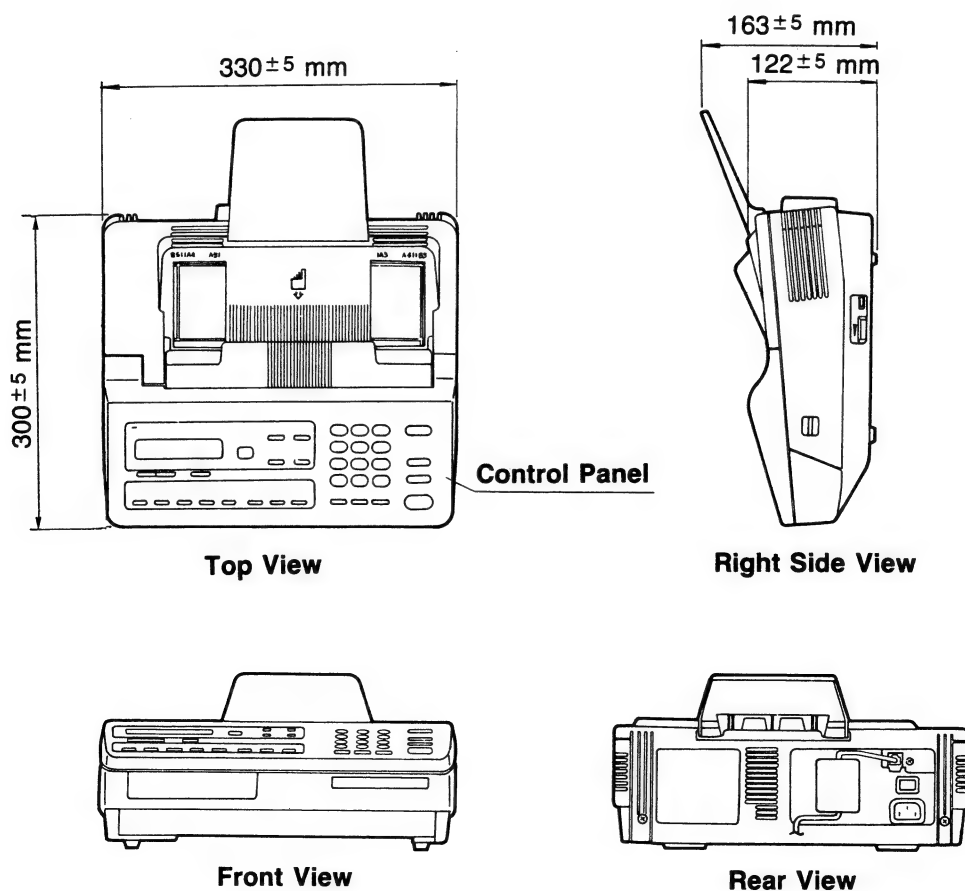
(2) Power consumption	: Standby	Approx. 10 W
	: Transmission	Approx. 25 W
	: Reception	Approx. 40 W
	: Copy	Approx. 50 W
	: Maximum	Approx. 135 W

1.3.6 Operating Environment

- | | |
|-----------------------|-----------------|
| (1) Temperature | : 5° to 35°C |
| (2) Relative humidity | : 20% to 80% RH |
| (3) Altitude | : 2400 m |
| (4) Tilt | : Even level |

1.3.7 Constructions

- | | | |
|----------------|---|----------------|
| (1) Dimensions | : Width | Approx. 330 mm |
| | : Depth | Approx. 300 mm |
| | : Height | Approx. 122 mm |
| | (Excluding tray and other projections) | |
| (2) Weight | : Approx. 6 kg | |
| | (Excluding recording paper roll, tray and power cord) | |



Chapter 2 BRIEF OPERATION GUIDE

CHAPTER 2 BRIEF OPERATION GUIDE

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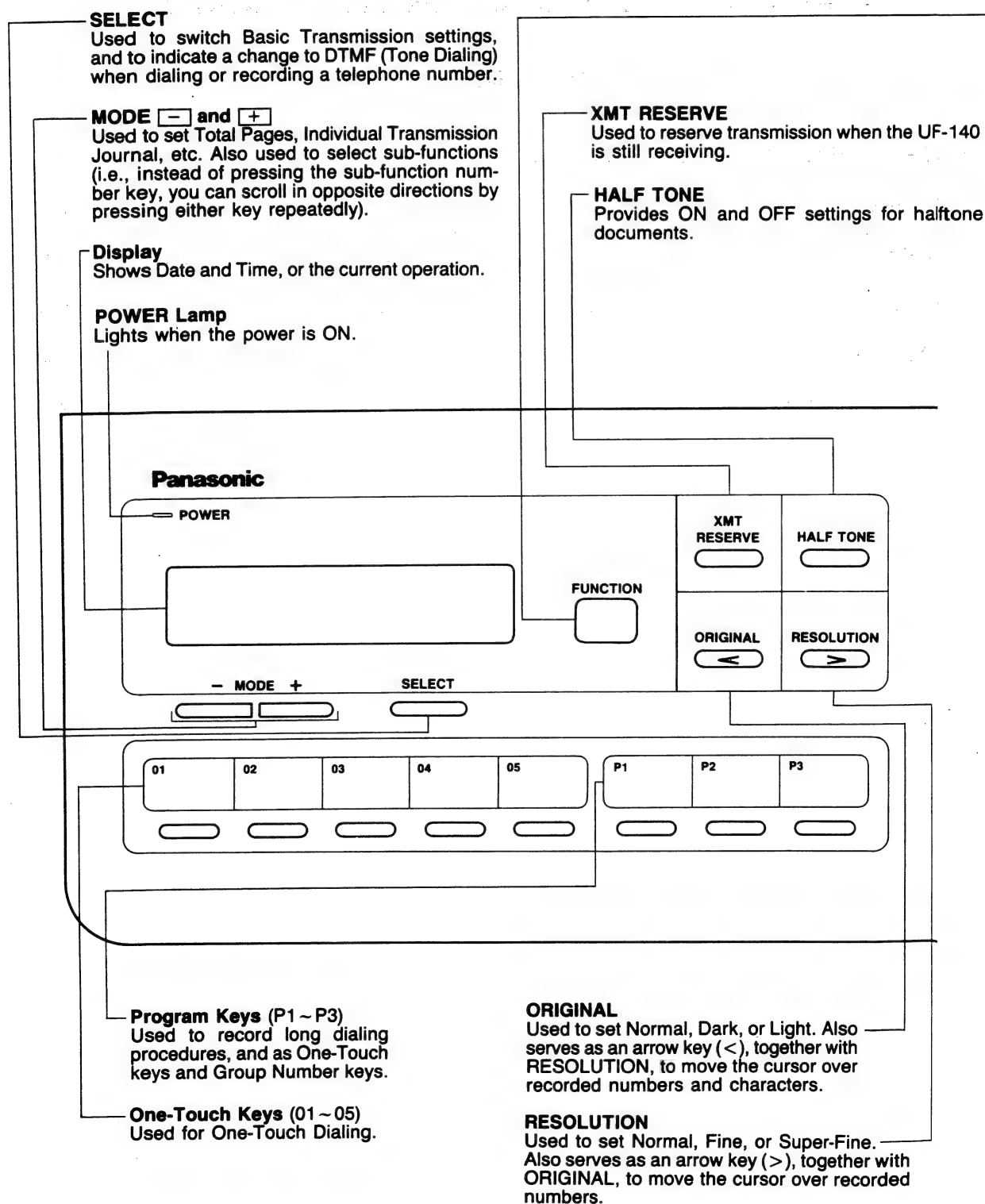
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CHAPTER 2 BRIEF OPERATION GUIDE

2.1 General

The operation procedures of the UF-140 Fax machine are briefly described as follows. For the further details, refer to "UF-140 USER'S GUIDE".

2.2 Control Panel



FUNCTION

Used to start or set the following functions and sub-functions:

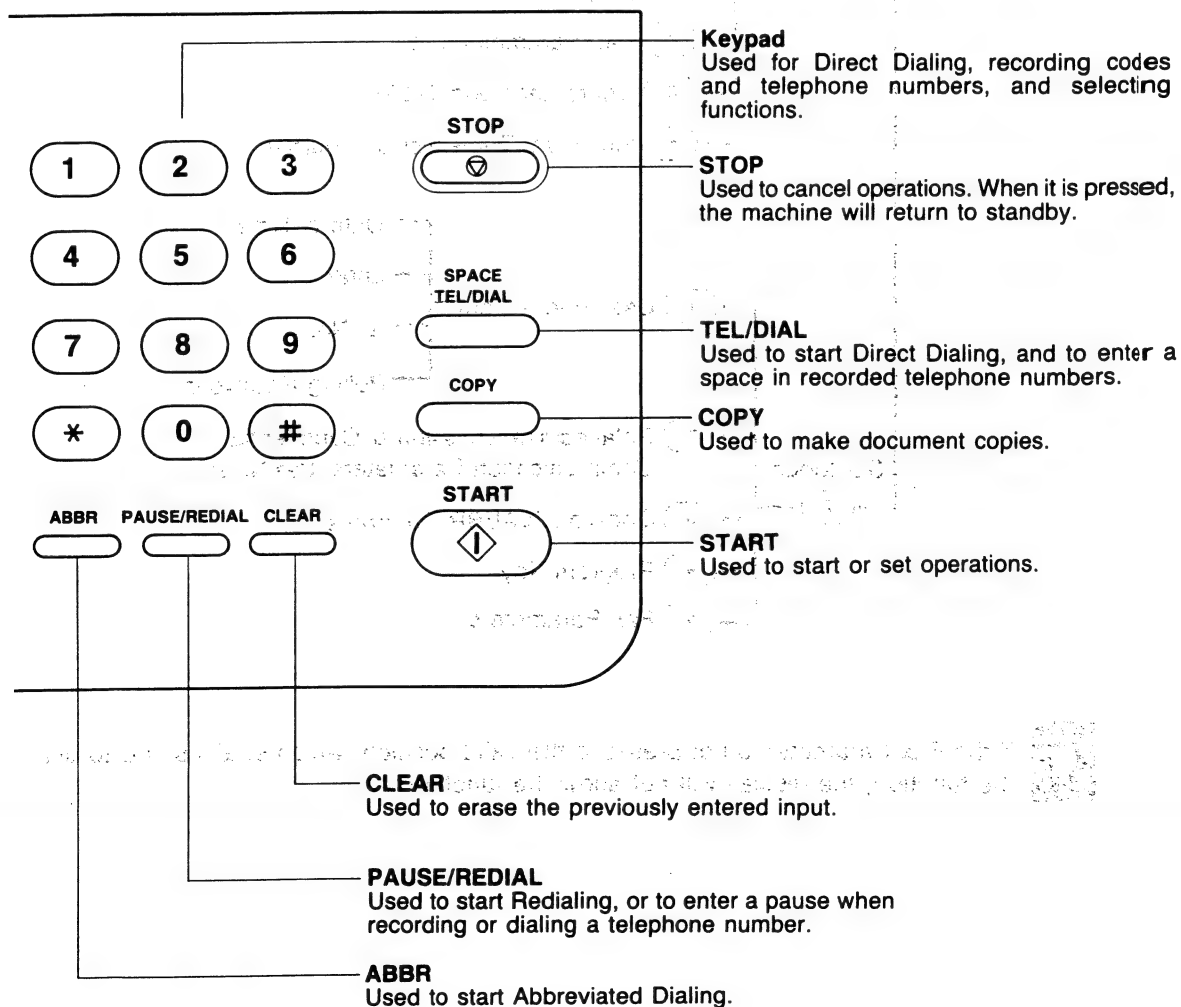
- 1 DEFERRED COMMUNICATION
- 2 RELAYED TRANSMISSION
- 3 POLLING
- 4 TRANSMISSION & POLLING
- 5 CONFIDENTIAL COMMUNICATION
- 6 PRINT OUT
 - ① JOURNAL PRINT
 - ② ONE-TOUCH/ABBR. NOS.
 - ③ PROGRAM LIST
 - ④ FAX PARAMETER LIST
 - ⑤ CHARACTER CODE TABLE
 - ⑥ INDIVIDUAL TRANSMISSION JOURNAL

7 SET MODE

- ① USER PARAMETERS
- ② RELAYED TRANSMISSION & CONF.COMM. PARAMETERS
- ③ ONE-TOUCH/ABBR. DIALING NOS.
- ④ PROGRAM KEYS
- ⑤ FAX PARAMETERS

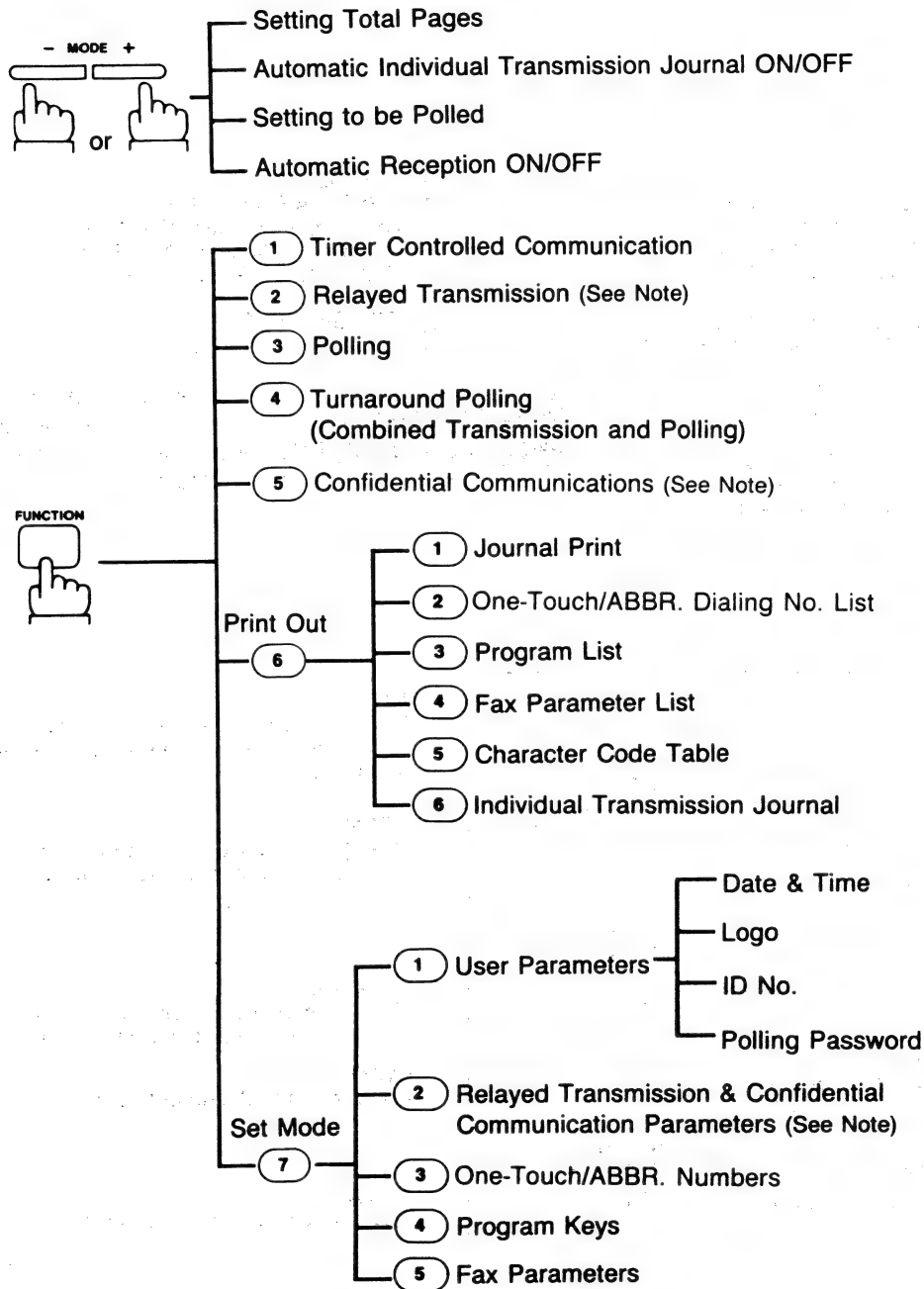


NOTE Any function can be started by first pressing **FUNCTION** and the function's number key, or by pressing **FUNCTION** repeatedly until the function appears on the display.



2.3 Function Key and Mode Key

The 140 uses a function key and mode key to set various functions and modes, as shown in the chart below.



NOTE If the Fax Parameter is not preset to the valid position, which enables you to use the function, the display will not show the function.

2.4 Character Code Table

CHR. CODE	A 10	B 11	C 12	D 13	E 14	F 15	G 16	H 17	I 18	J 19	K 20	L 21	M 22
CHR. CODE	N 23	O 24	P 25	Q 26	R 27	S 28	T 29	U 30	V 31	W 32	X 33	Y 34	Z 35
CHR. CODE	a 36	b 37	c 38	d 39	e 40	f 41	g 42	h 43	i 44	j 45	k 46	l 47	m 48
CHR. CODE	n 49	o 50	p 51	q 52	r 53	s 54	t 55	u 56	v 57	w 58	x 59	y 60	z 61
CHR. CODE	Å 62	Ä 63	Ö 64	Ü 65	å 66	ä 67	ö 68	ü 69					
CHR. CODE	0 00	1 01	2 02	3 03	4 04	5 05	6 06	7 07	8 08	9 09			
CHR. CODE	(space) 70	. 84	, 82	' 77	: 86	; 87	/ 85	# 73	& 76	- 83	(78) 79	* 80
CHR. CODE	+ 81	! 71	" 72	\$ 74	% 75	< 88	= 89	> 90	? 91	@ 92	[93] 94	^ 95
CHR. CODE	— 96	` 97	 98	█ 99									


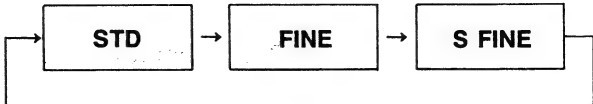

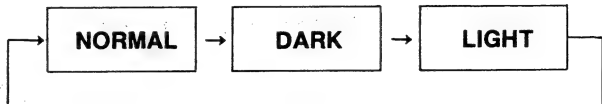

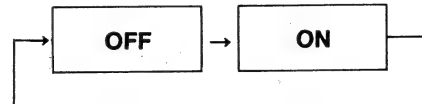



2.5 Operation Procedures

2.5.1 Setting Up UF-140

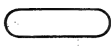
Major Functions	Operation Procedures
(1) RAM Initialization	<p>FUNCTION → 7 → SPACE TEL/DIAL → * → 6 →</p> <p>START → * → STOP</p> <p>four times twice</p>
(2) Dialing Method (Tone or Pulse)	<p>FUNCTION → 7 → 5 → START →</p> <p>0 7 — [1 Tone / 2 Pulse] — START → STOP</p>
(3) Date and Time	<p>FUNCTION → 7 → 1 → START →</p> <p>Two-digit numbers (Day-Month-Year) → START →</p> <p>STOP</p>
(4) Logo	<p>FUNCTION → 7 → 1 → START → - MODE + →</p> <p>repeatedly</p> <p>Enter Logo → START → STOP</p>
(5) ID Number	<p>FUNCTION → 7 → 1 → START → - MODE + →</p> <p>Enter ID number → START → STOP</p>

Major Function	Operation Procedures																																																																																																						
(6) One-Touch & ABBR. Dialing Number	<div><div>FUNCTION</div><div><div></div>→<div>7</div>→<div>3</div>→<div><div>START</div><div>↓</div></div>→</div></div> <div><div>One-Touch Key (<div>01</div> ~ <div>05</div>)</div><div><div>ABBR</div> and two digits (<div>0</div> <div>1</div> ~ <div>7</div> <div>0</div>)</div></div> <div><div>Enter telephone number</div>→<div><div>START</div><div>↓</div></div>→</div> <div><div>Enter station name</div>→<div><div>START</div><div>↓</div></div>→<div><div>STOP</div><div>⬇</div></div></div>																																																																																																						
(7) Fax Parameters (see Parameter Table)	<div><div>FUNCTION</div><div><div></div>→<div>7</div>→<div>5</div>→<div><div>START</div><div>↓</div></div>→</div></div> <div><div>Enter Fax Parameter Number</div>→<div>Enter new Setting Value</div>→</div> <div><div><div>START</div><div>↓</div></div>→<div><div>STOP</div><div>⬇</div></div></div> <div><div>Parameter Table</div><table><tr><th>Parameter number</th><th>Parameter</th><th>Setting Number</th><th>Setting</th><th>Standard Setting</th></tr><tr><td rowspan="3">01</td><td rowspan="3">Resolution</td><td>1</td><td>Standard</td><td>○</td></tr><tr><td>2</td><td>Fine</td><td></td></tr><tr><td>3</td><td>Super Fine</td><td></td></tr><tr><td rowspan="3">02</td><td rowspan="3">Contrast (ORIGINAL)</td><td>1</td><td>Normal</td><td>○</td></tr><tr><td>2</td><td>Dark</td><td></td></tr><tr><td>3</td><td>Light</td><td></td></tr><tr><td rowspan="2">04</td><td rowspan="2">Polled</td><td>1</td><td>OFF</td><td>○</td></tr><tr><td>2</td><td>ON</td><td></td></tr><tr><td rowspan="2">05</td><td rowspan="2">Automatic Journal Print</td><td>1</td><td>Valid</td><td>○</td></tr><tr><td>2</td><td>Invalid</td><td></td></tr><tr><td rowspan="3">06</td><td rowspan="3">Header Print Location</td><td>1</td><td>Inside copy area</td><td>○</td></tr><tr><td>2</td><td>Outside copy area</td><td></td></tr><tr><td>3</td><td>Not printed</td><td></td></tr><tr><td rowspan="2">07</td><td rowspan="2">Dialing Method</td><td>1</td><td>Tone</td><td></td></tr><tr><td>2</td><td>Pulse</td><td>○</td></tr><tr><td rowspan="2">08</td><td rowspan="2">Relayed XMT</td><td>1</td><td>Invalid</td><td>○</td></tr><tr><td>2</td><td>Valid</td><td></td></tr><tr><td rowspan="2">09</td><td rowspan="2">Confidential Fax</td><td>1</td><td>Invalid</td><td>○</td></tr><tr><td>2</td><td>Valid</td><td></td></tr><tr><td rowspan="2">10</td><td rowspan="2">Key Tone (Beep)</td><td>1</td><td>Soft</td><td>○</td></tr><tr><td>2</td><td>Loud</td><td></td></tr><tr><td rowspan="2">13</td><td rowspan="2">Sending in "No Paper" or "Receiving Error" state (See Note.)</td><td>1</td><td>Allowed</td><td>○</td></tr><tr><td>2</td><td>Not Allowed</td><td></td></tr><tr><td rowspan="2">19</td><td rowspan="2">Automatic Individual XMT Journal</td><td>1</td><td>OFF</td><td>○</td></tr><tr><td>2</td><td>ON</td><td></td></tr></table></div> <div><div>NOTE</div><div><div>!</div><div>When parameter No.13 is set to 1, you can still send documents even when your UF-140 has no more recording paper, or when a mechanical error has occurred which affects receiving. Some transactions, however, may not be recorded on the Journal when either of these situations occurs.</div></div></div>	Parameter number	Parameter	Setting Number	Setting	Standard Setting	01	Resolution	1	Standard	○	2	Fine		3	Super Fine		02	Contrast (ORIGINAL)	1	Normal	○	2	Dark		3	Light		04	Polled	1	OFF	○	2	ON		05	Automatic Journal Print	1	Valid	○	2	Invalid		06	Header Print Location	1	Inside copy area	○	2	Outside copy area		3	Not printed		07	Dialing Method	1	Tone		2	Pulse	○	08	Relayed XMT	1	Invalid	○	2	Valid		09	Confidential Fax	1	Invalid	○	2	Valid		10	Key Tone (Beep)	1	Soft	○	2	Loud		13	Sending in "No Paper" or "Receiving Error" state (See Note.)	1	Allowed	○	2	Not Allowed		19	Automatic Individual XMT Journal	1	OFF	○	2	ON	
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06	Header Print Location	1	Inside copy area	○																																																																																																			
		2	Outside copy area																																																																																																				
		3	Not printed																																																																																																				
07	Dialing Method	1	Tone																																																																																																				
		2	Pulse	○																																																																																																			
08	Relayed XMT	1	Invalid	○																																																																																																			
		2	Valid																																																																																																				
09	Confidential Fax	1	Invalid	○																																																																																																			
		2	Valid																																																																																																				
10	Key Tone (Beep)	1	Soft	○																																																																																																			
		2	Loud																																																																																																				
13	Sending in "No Paper" or "Receiving Error" state (See Note.)	1	Allowed	○																																																																																																			
		2	Not Allowed																																																																																																				
19	Automatic Individual XMT Journal	1	OFF	○																																																																																																			
		2	ON																																																																																																				

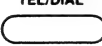





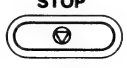


2.5.2 Basic Transmission Settings

Major Functions	Operation Procedures
(1) Resolution	<p>RESOLUTION  repeatedly</p>  <pre> graph LR STD[STD] --> FINE[FINE] FINE --> SFINE[S FINE] SFINE --> STD </pre>
(2) Original (Contrast)	<p>ORIGINAL  repeatedly</p>  <pre> graph LR NORMAL[NORMAL] --> DARK[DARK] DARK --> LIGHT[LIGHT] LIGHT --> NORMAL </pre>
(3) Halftone	<p>HALF TONE  repeatedly</p>  <pre> graph LR OFF[OFF] --> ON[ON] ON --> OFF </pre>
(4) Total Pages	<p>- MODE +  → Enter a two-digit number</p>
(5) Automatic Individual Transmission Journal (XMT JRNL)	<p>- MODE +  repeatedly</p> <p>→ SELECT </p> <ul style="list-style-type: none"> XMT JRNL = ON→OFF XMT JRNL = OFF→ON






2.5.3 Making Copies

Major Functions	Operation Procedures
Making Copies	Place Document → 

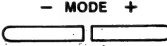



2.5.4 Dialing Techniques

Major Functions	Operation Procedures
(1) Dialing with keypad (On-Hook Dialing)	Place Document →  → Enter telephone number
(2) Dialing with Telephone Set (Off-Hook Dialing)	Place Document →  → Dial telephone number → When hearing a beep →  → Hang up
(3) One-Touch Dialing	Place Document → Press a One-Touch Key
(4) Abbreviated Dialing	Place Document →  → Enter a two digit number
(5) Redialing	Place Document → 
(6) What to Do When Hearing a Voice through Speaker	 →  →  → When hearing a beep →  → Hang up
















2.5.5 Transmission Reservation (XMT Reserve)

Major Functions	Operation Procedures
(1) Setting Transmission Reservation	Place Document →  → Enter the called station → 
(2) Canceling Transmission Reservation	Remove the Document →  →  → 

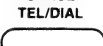






2.5.6 Receiving Document

Major Functions	Operation Procedures
(1) Setting Automatic/Manual Reception	 repeatedly →  → <div style="display: inline-block; vertical-align: middle;"> <div style="border-left: 1px solid black; padding-left: 5px; margin-left: 5px;">RCV = AUTO → MANUAL</div> <div style="border-left: 1px solid black; padding-left: 5px; margin-left: 5px;">RCV = MANUAL → AUTO</div> </div>
(2) Manual Reception	 → Make sure no Document on the ADF →  →









2.5.7 Polling

Major Functions	Operation Procedures
(1) Setting Polling Password	<p>FUNCTION →  →  →  →  repeatedly</p> <p>Enter a four-digit password →  → </p>
(2) Preparing to be Polled	<p>Place Document →  repeatedly →  →</p> <p>→  → </p>
(3) How to Poll	<p>FUNCTION →  → Enter the called station(s) → </p>
(4) Turnaround Polling	<p>Place Document →  →  → Enter the called station →</p> <p></p>

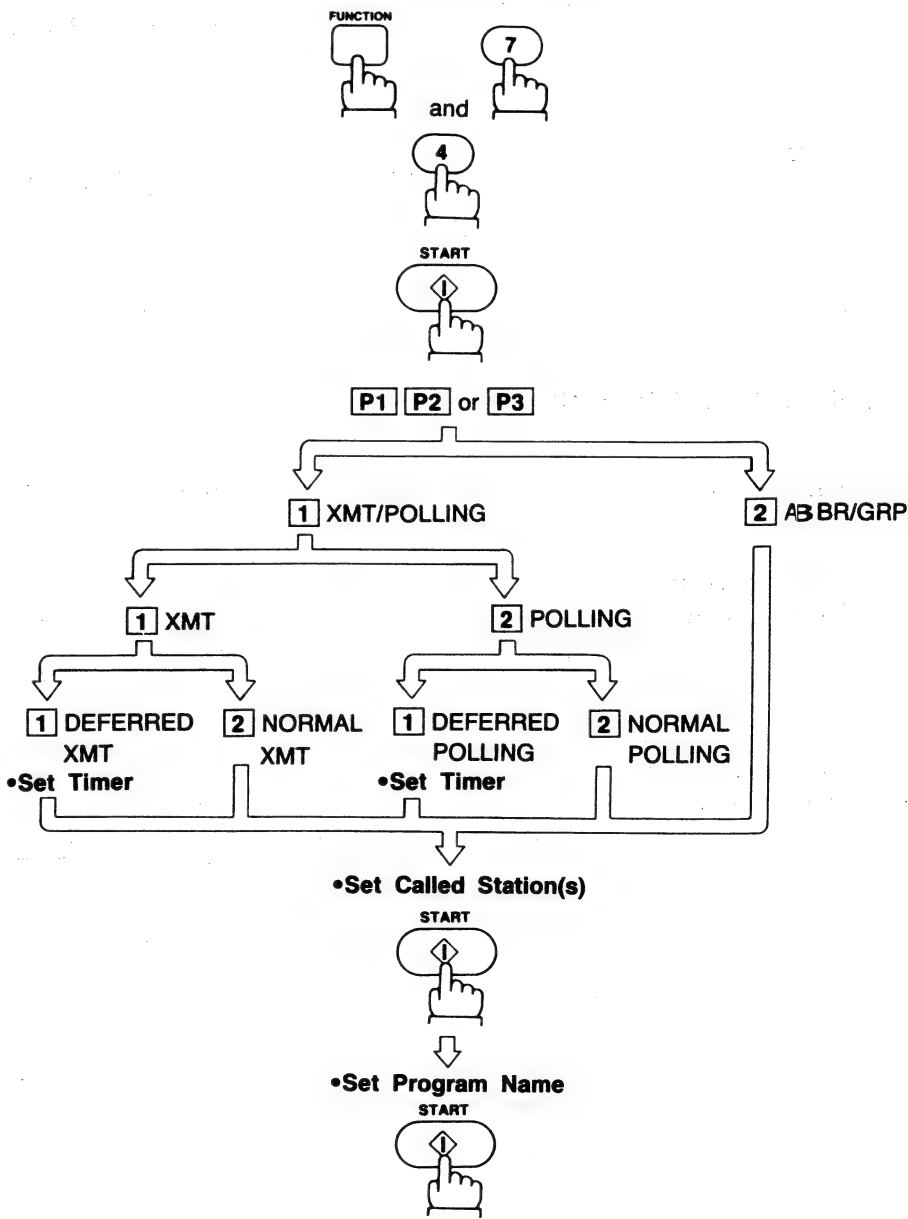
2.5.8 Voice Contact

Major Functions	Operation Procedures
(1) Making a Voice Contact Request	<p> → When hearing a beep →  →  → </p>
(2) Answering a Voice Contact Request	<p>When hearing a beep →  →  → </p>

2.5.9 Timer Controlled Communications

Major Functions	Operation Procedures
(1) Deferred Transmission	Place Document →  →  →  → Enter start time → Enter the called station → 
(2) Deferred Polling	 →  →  → Enter start time → Enter the called station(s) → 

2.5.10 Programmed Communication




Major Functions	Operation Procedures
Setting and Using Program Keys	 <pre> graph TD A[FUNCTION and 7 buttons] --> B[4 button] B --> C[START button] C --> D[P1, P2, or P3 buttons] D --> E[1 XMT/POLLING] D --> F[2 ABBR/GRP] E --> G[1 XMT] E --> H[2 POLLING] G --> I[1 DEFERRED XMT] G --> J[2 NORMAL XMT] H --> K[1 DEFERRED POLLING] H --> L[2 NORMAL POLLING] I --> M[Set Timer] K --> M M --> N[Set Called Station(s)] N --> O[START button] O --> P[Set Program Name] P --> Q[START button] F --> Q </pre> <p>The flowchart illustrates the steps for setting and using program keys. It begins with pressing the FUNCTION button and the 7 button, followed by the 4 button and the START button. The user then selects between P1, P2, or P3. This leads to either 1 XMT/POLLING or 2 ABBR/GRP. From 1 XMT/POLLING, the user can choose 1 XMT or 2 POLLING. 1 XMT further branches into 1 DEFERRED XMT (which includes a Set Timer step) and 2 NORMAL XMT. 2 POLLING branches into 1 DEFERRED POLLING (which includes a Set Timer step) and 2 NORMAL POLLING. Both DEFERRED paths lead to Set Called Station(s), followed by the START button. Finally, the user sets the Program Name and presses the START button. The 2 ABBR/GRP path also leads directly to the final START button.</p>

2.5.11 Printout Reports and Lists









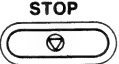


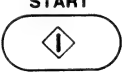



Major Functions	Operation Procedures
(1) Journal	<p>FUNCTION → 6 → 1 → START</p>
(2) Individual Transmission Journal	<p>FUNCTION → 6 → 6 → START</p>
(3) One-Touch/ABBR. Dialing Number List	<p>FUNCTION → 6 → 2 → START</p>
(4) Program List	<p>FUNCTION → 6 → 3 → START</p>
(5) Fax Parameter List	<p>FUNCTION → 6 → 4 → START</p>
(6) Character Code Table	<p>FUNCTION → 6 → 5 → START</p>

2.5.12 Relayed Transmission

Major Functions	Operation Procedures
(1) Setting up (a) Fax Parameter	<p>FUNCTION → 7 → 5 → START (↓) → 0 8 →</p> <p>2 → START (↓) → STOP (⊙)</p>
(b) Own Telephone Number, Network Address, Network Password, and Substitute Relay Station	<p>FUNCTION → 7 → 2 → START (↓) →</p> <p>Enter your telephone number → START (↓) →</p> <p>Enter your Network Address → START (↓) →</p> <p>Enter Network Password → START (↓) →</p> <p>Enter substitute Relay station → START (↓) → STOP (⊙)</p>
(c) One-Touch/ABBR. Number, Network Address, Relay Station Parameter, and XMT Parameter	<p>FUNCTION → 7 → 3 → START (↓) → [One-Touch ABBR and two-digit] →</p> <p>Enter the called station number → START (↓) →</p> <p>Enter the called station name → START (↓) →</p> <p>Enter a four-digit Network Address → START (↓) →</p> <p>→ [1 First Relay Station / 2 Not] → Enter a two-digit Relay Address →</p> <p>START (↓) → [1 Via Relay Station / 2 Direct transmission] → STOP (⊙)</p>

Major Functions	Operation Procedures
(2) Sending a Document	Place Document →  →  → Enter the called station(s) → 

2.5.13 Confidential Communications

Major Functions	Operation Procedures
(1) Setting Fax Parameter	 →  →  →  →   →  →  → 
(2) Sending a Confidential Fax	Place Document →  →  → Enter a four-digit confidential code → Enter the called station → 
(3) Polling a Confidential Fax	Make sure no Document on the ADF →  →  → Enter a four-digit confidential code → Enter the called station → 

Chapter 3 INSTALLATION & TEST MODE

CHAPTER 3 INSTALLATION & TEST MODE

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3-10

3-1

CHAPTER 3 INSTALLATION & TEST MODE

CONTENTS

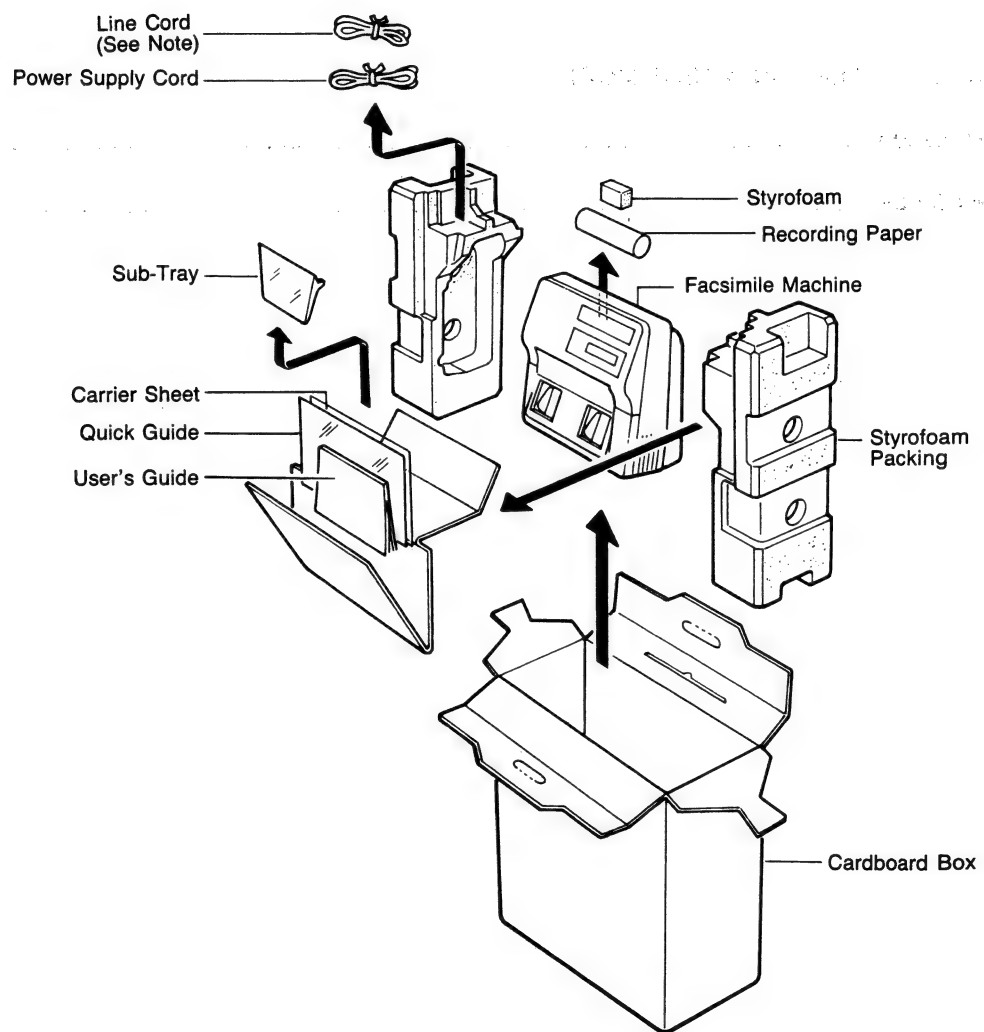
CHAPTER 3	INSTALLATION & TEST MODE	3-1
3.1	Installation	3-1
3.2	Test Mode	3-10

CHAPTER 3 INSTALLATION & TEST MODE

3.1 INSTALLATION

3.1.1 Unpacking

Unpack the unit referring to the illustration shown below and then remove the facsimile machine from its protective plastic bag (which is not shown in the illustration). Inspect the unit for any shipping damage and also check that you have all accessories illustrated below.

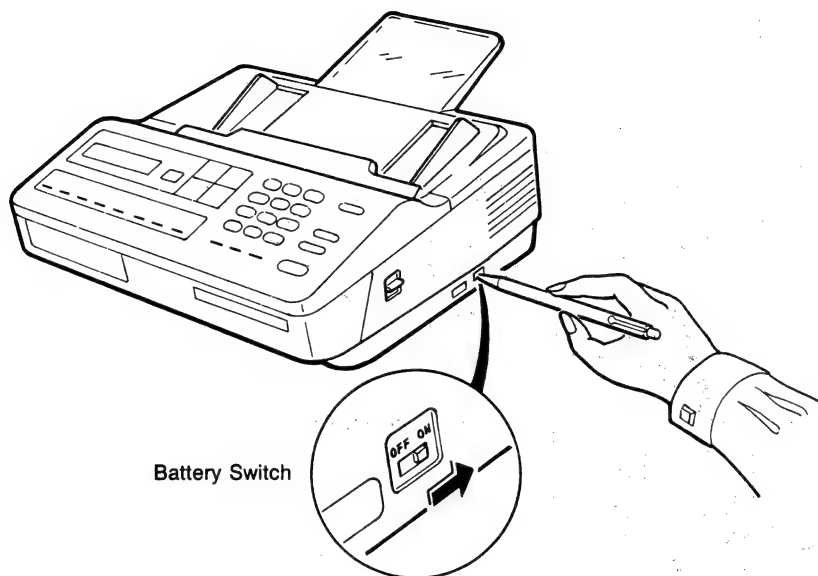


Note:

When you purchased the machine, the line cord had been connected to the machine.

3.1.2 Battery Switch

The unit is equipped with a battery pack which backs up the RAM data up to 10 days when it is fully charged. The battery switch must be turned ON when the unit is installed first. If it is not turned ON, all information which is programmed will be lost when the AC power is turned OFF.

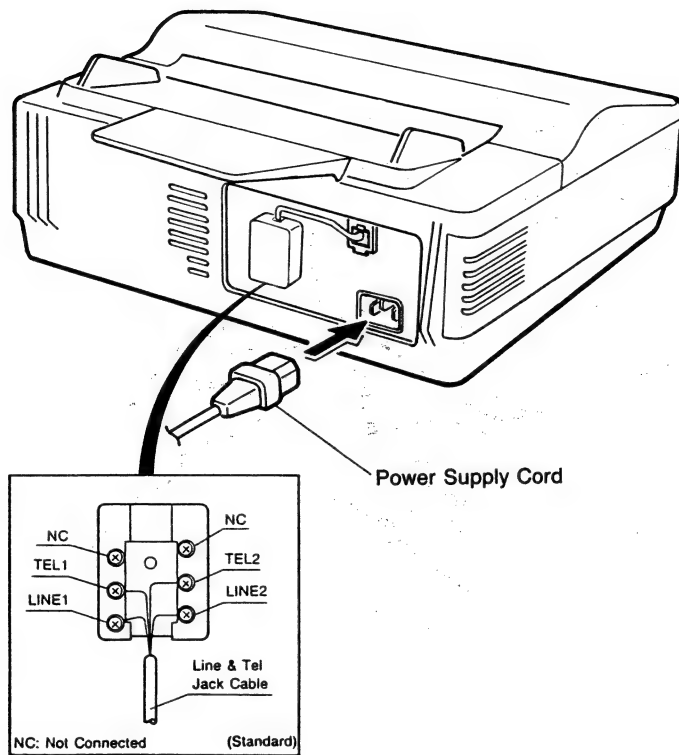


3.1.3 Connecting the Telephone Line and Power Supply Cord

Three types of telephone line connection are available for this facsimile machine. Follow instructions given below according to the method you ordered.

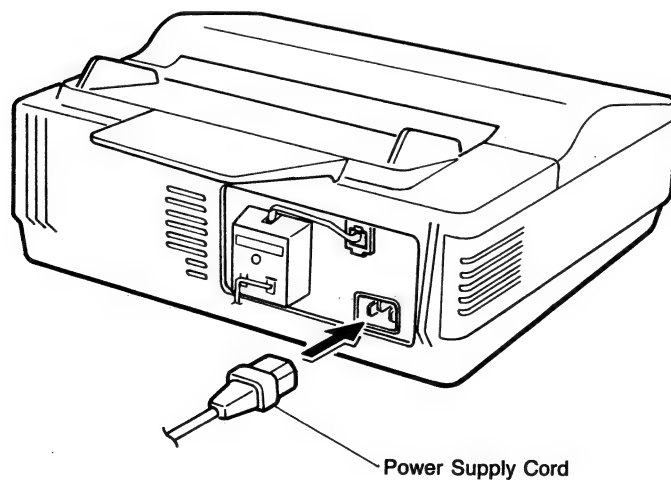
① Rosette Type

Open the rosette mounted on the rear panel and connect the telephone line and telephone set referring to the illustration shown below.



② Terminal Box (British Standard BS6312) Type

Plug the line cord into the LINE connector of the terminal box mounted on the rear panel. (To connect a telephone to the unit, break off the protective tab of the TEL connector on the terminal box.)

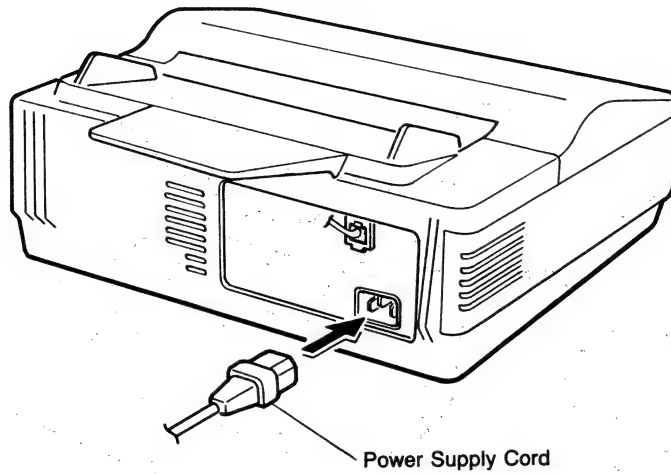


③ **FCC Modular Cord Type**

Plug the FCC Modular cord into the LINE connector on the rear panel of the machine, and connect the other end of the cord to the telephone jack.

(To connect a telephone to the unit, break off the protective tab of the PHONE connector on the rear panel.)

Plug the power supply cord into the receptacle on the rear of the unit.

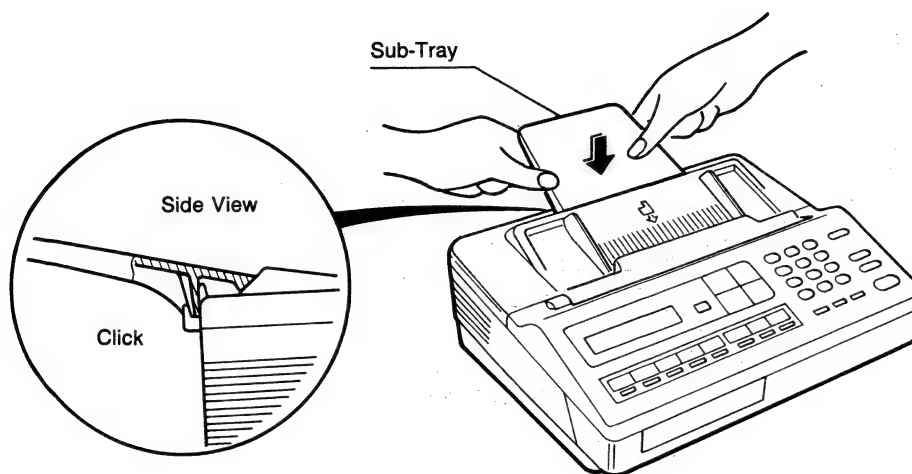


Power Supply Cord

3.1.4 Installing Sub-Tray

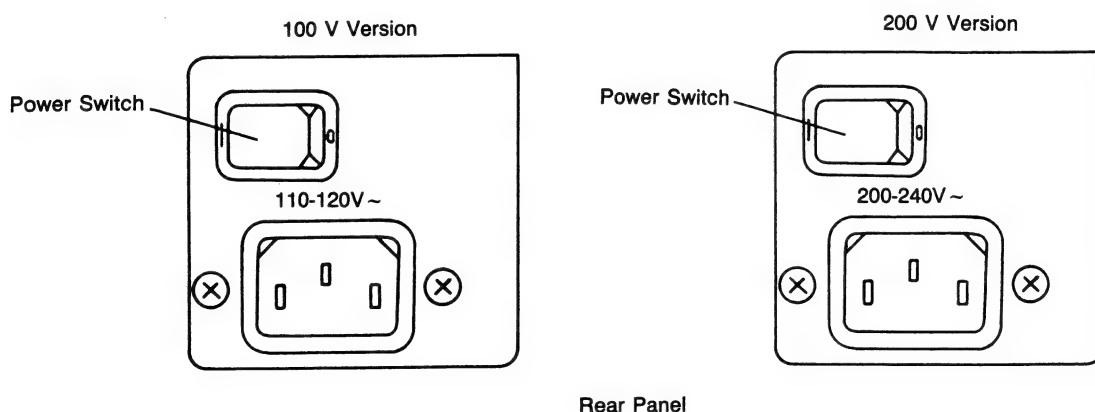
The ADF tray is provided as a part of the upper cover in this unit. Install the sub-tray following instructions given below:

Install the sub-tray by inserting it downwards and inserting it into the slit on the upper cover. See the figure shown below.



3.1.5 Power Switch

The power switch is located on the rear panel of the unit as shown below.

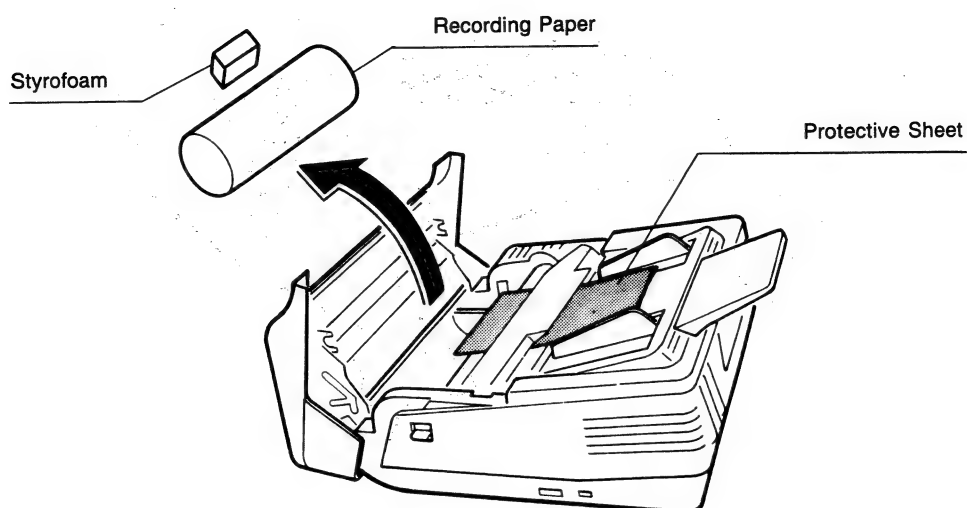


Turn the power switch to "I" position to turn on the power. The power lamp on the control panel should light up.

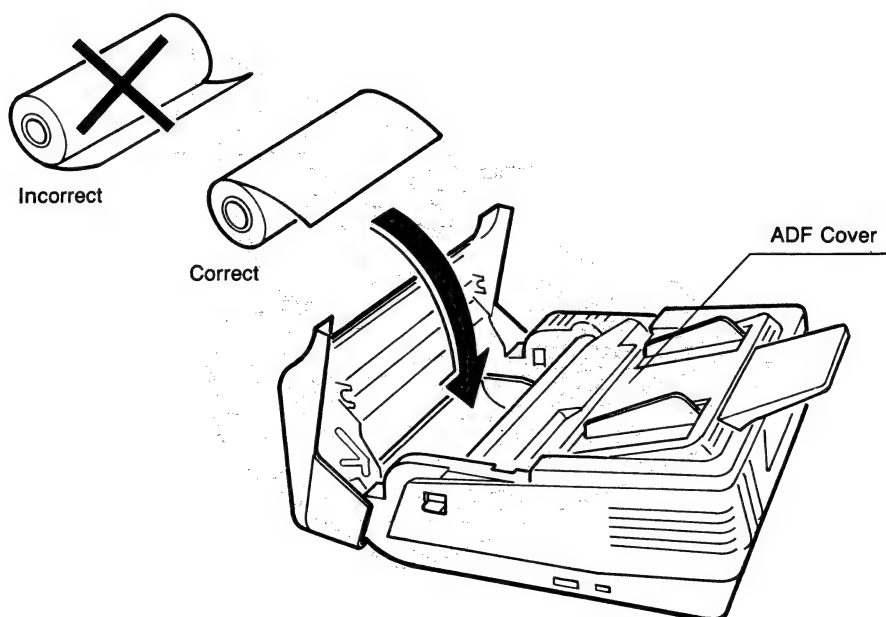
You should keep it ON at all times. If you turn the machine OFF for too long, the contents of the memory (such as ID number, logo you registered) will be lost. (But in case of a short power failure, the power supply to the memory is backed up by a battery to preserve the memory contents.)

3.1.6 Setting Recording Paper

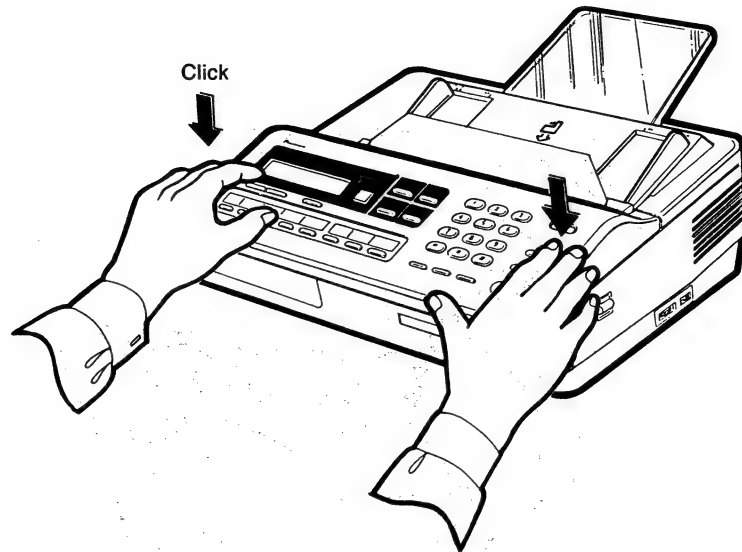
- (1) Press the latch button on the right side of the cover and open the Receiver Unit. Remove the styrofoam, Head Protective Sheet, and recording paper.



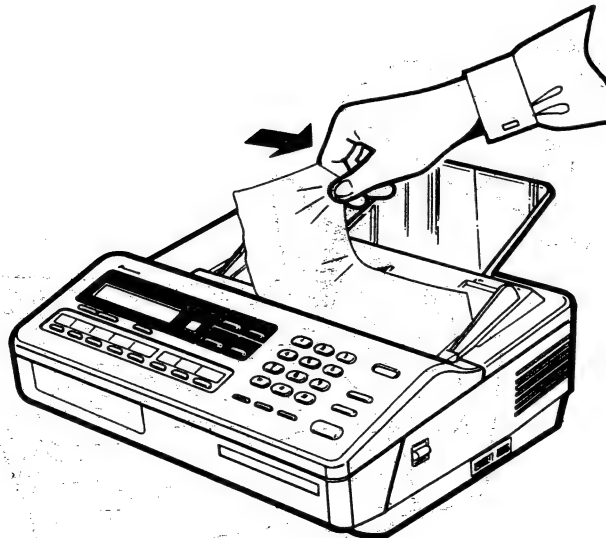
- (2) Remove the wrapper, and set the recording paper into the unit and feed the leading edge of the recording paper to the ADF cover. Make sure that the recording paper is correctly loaded as shown in the figure below. If it is loaded incorrectly, the machine will not reproduce images.



(3) Close the Receiver Unit carefully by pressing both corners down until the cover locks into position (you will hear a "click" sound).



(4) Cut the recording paper projecting from the unit by hand and remove this cut paper.



3.1.7 RAM Initialization

Initialize the RAM to clear the user's utilities and to store the default value of function parameters in the following procedure. Note that this operation should be performed before programming the functions.

Table 3.1 RAM Initialization

Step	Operation or unit condition	LCD display
1	Standby	01-01-1900 12:00
2	Press the FUNCTION , and press 7 .	SET MODE NO. = █
3	Press the TEL/DIAL button four times and then press the * button.	TEST MODE NO. = █
4	Press 6 .	TEST MODE NO. = 6 █
5	Press the START button.	TEST MODE * INITIALIZE RAM *
6	Press the * button. Default value of function parameters is stored.	TEST MODE NO. = █
7	Press the STOP button twice to return to standby.	01-01-1900 12:00

Notes:

1. In the step 6, pressing the **STOP** button instead of the ***** button causes that the default value is not stored and LCD shows the display in step 3.
2. In some of countries, it is required that S3 switches to ON and then the power switch turns ON to enter the Test Mode.

3.1.8 Settings

- (1) Program the following user parameters and utilities. Refer to Chapter 2 (Brief Operation Guide) for detail instructions.
- a) Date & Time (Day-Month-Year Hour: Minute)
 - b) LOGO (Up to 25 characters)
 - c) ID number (Up to 20 digits)
 - d) Polling password (4 digits)
 - e) One-Touch and Abbreviated dialing numbers and station names (Up to 70 stations)
 - f) Program keys and Program names (Up to 3 Keys)

Note:

In some countries, it is required that S3 (SERVICE SW) on the SC PC Board switches to ON to set ID number.

- (2) If necessary, change the setting parameters such as home position, dialing signal, etc., according to the condition of the usage. Use "Fax Parameters" function and Test Mode 1.
(Refer to 3.2.2 Test Mode No. 1)
(Refer to Chapter 2)

3.1.9 Final Installation Test

After the installation of the unit, perform the following operations to check if the unit has been installed properly.

- (1) Make a copy.
- (2) Print out the test pattern. For detail instruction, refer to 3.2.1, Test Pattern Printout.
- (3) Carry out the communication test. Transmit and receive the document over the telephone line.
According to the communication results, if necessary, perform the operation described in 3.2, Test Mode.

3.2 Test Mode

The following test modes are provided to perform setting the data and checking the condition of the unit. After the installation, if necessary, execute the following tests according to the condition of the unit.

Table 3.2 Test Mode

Test mode NO.	Test mode	Description
0	Test Pattern Printout	To print out the test pattern to check the thermal recording head. (Refer to 3.2.1.)
1	Function parameter setting	To change the function parameters such as the home position and various functions in decimal code. (Refer to 3.2.2.)
2	RAM data setting	To write or change the RAM data in hexadecimal code. This is only for factory use.
3	RAM data print	To print out the list of all function parameters in decimal code and RAM data in hexadecimal code with default value. (Refer to 3.2.3.)
5	Signal generation	To generate the various signals. (Refer to 3.2.4.)
6	RAM initialization	To initialize the RAM and to store the default value of function parameters. (Refer to 3.2.5.)
7	DTMF signal generation	To generate the single tone DTMF signal. (Refer to 3.2.6)

3.2.1 Self Test (Test Pattern Printout)

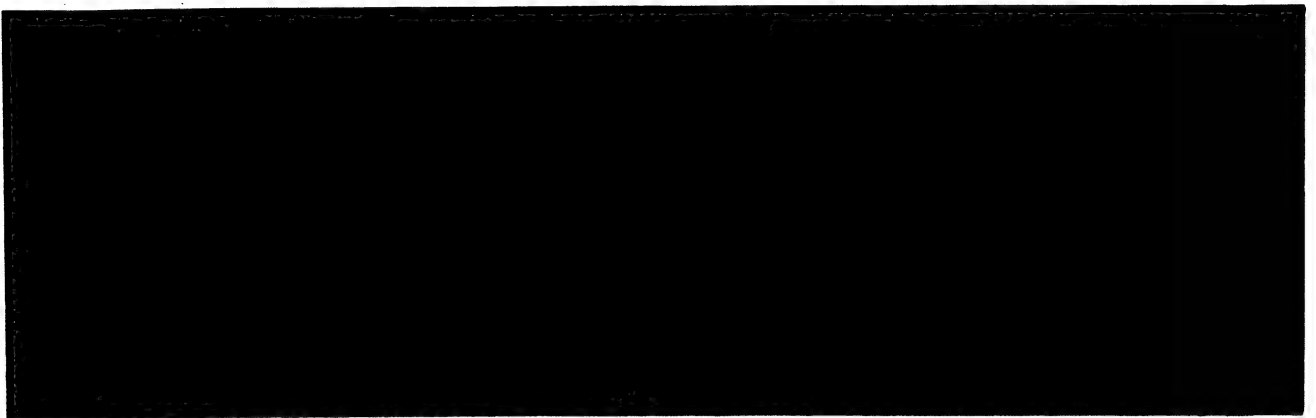
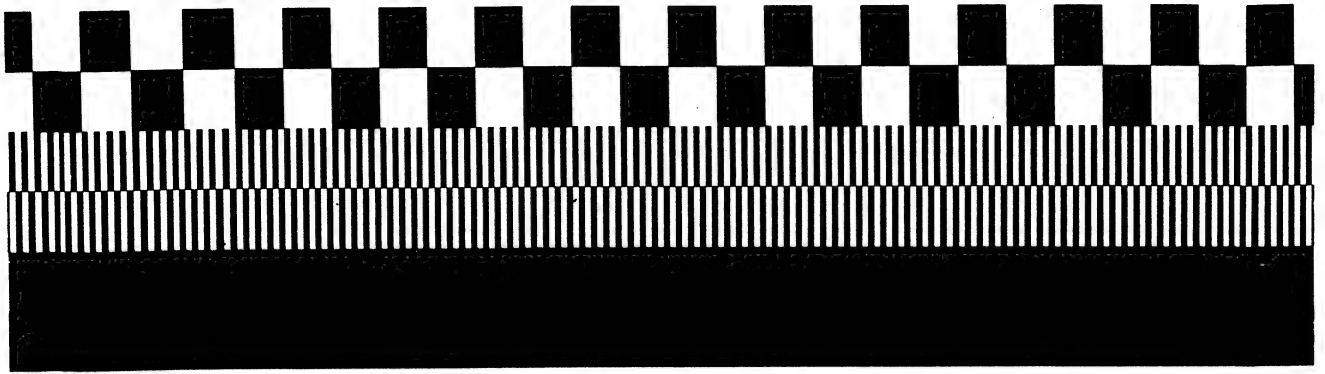
The test pattern is printed out for checking the receiving mechanism — especially the thermal recording head — in the following procedure.

Step	Operation or unit condition	LCD display
1	Standby	15-01-1989 15:00
2	Press the FUNCTION button, and then press 7 .	SET MODE NO. = ■
3	Press the TEL/DIAL button four times, and press the * button.	TEST MODE NO. = ■
4	Press 0 , then the START button. The test pattern is printed out.	TEST MODE * PRINT PATTERN *
5	After printing completion, the unit returns to the display of step 3.	TEST MODE NO. = ■
6	Press the STOP button to return to standby.	15-01-1989 15:00

Note:

Refer to a sample copy of the test pattern on the next page.

Sample of the Test Pattern



3.2.2 Test Mode No. 1 (Function Parameter Setting)

If necessary, change the function parameters in the following procedures.

Step	Operation or unit condition	LCD display
1	Standby	15-01-1989 15:00
2	Press the FUNCTION button, and press 7 .	SET MODE NO. =
3	Press the TEL/DIAL button four times, and the * button once.	TEST MODE NO. =
4	Press 1 .	TEST MODE NO. = 1
5	Press the START button. Enter the parameter number and the new data according to Table 3.3. Then press the START . The new data will be written and the parameter number will be incremented. Repeat step 5 until all parameters you want to change are set. Then proceed to step 6.	TEST MODE SET SW #00 [] =
6	Press the STOP button twice to return to standby.	15-01-1989 15:00

The buttons provide the following function in TEST MODE.

MODE **+** Increase the parameter number.

START Write the entered data into RAM and Increase the parameter number.

MODE **-** Decrease the parameter number.

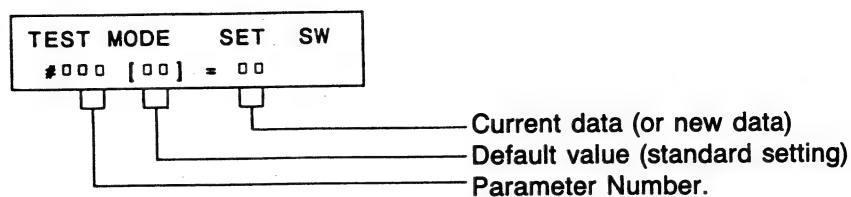
ORIGINAL Move the cursor.

RESOLUTION

Note:

The function parameters listed in parameter table can be set after step 5 has been completed.

Display format is shown in below:

**Example:**

Set the document contrast home position to LIGHT.

Step	Operation or unit condition	LCD display
5. (a)		<div>TEST MODE SET SW</div> <div>#000 [] = </div>
5. (b)	Select parameter number 001 from the table. Press the 0 0 and 1 buttons.	<div>TEST MODE SET SW</div> <div>#001 [01] = 00</div>
5. (c)	Select value "00" denoted LIGHT. Press the 0 button twice and press the START button.	<div>TEST MODE SET SW</div> <div>#003 [00] = 00</div>
6.	Press the STOP button twice. The home position for document contrast is set to LIGHT, and the unit returns to standby status.	<div>TEST MODE</div> <div>NO. = █</div> <div style="text-align: center;">↓</div> <div>15-01-1989 15:00</div>

Table 3.3 Function Parameter Table

No.	Function	Default Data	Selection		Remarks
			Data	Description	
000	Resolution	01	01	STD (3.85 lines/mm)	Selection of Home position
			02	FINE (7.7 lines/mm)	
			03	SUPER FINE (15.4 lines/mm)	
001	Document contrast	01	00	LIGHT	Selection of Home position
			01	NORMAL	
			02	DARK	
003	Polled	00	00	Off	Selection of Home position
			01	On	
005	Header print position	02	00	Not printed	Selection of print/not print and its printing position
			01	Beyond top edge of picture area	
			02	Inside top edge of picture area	
006	Print total number of documents	02	00	Not printed	Selection of print/not print and its printing position
			01	Beyond bottom edge of picture area	
			02	Inside bottom edge of picture area	
007	Document length limit (Jam detection)	00	00	Yes (approx. 1 m)	Selection of document length
			01	No	
008	Receive TSI print	00	00	Not printed	Selection of TSI print/not print
			01	Print for G3 STD only	
			02	Print for G3 STD and Non STD	
011	Resolution in copy mode	02	01	3.85 lines/mm	Selection of Home position
			02	7.7 lines/mm	
			03	15.4 lines/mm	

(Continued)

No.	Function	Default Data	Selection		Remarks
			Data	Description	
012	Allowable number of error lines	01	00	32 lines	Select suitable value according to line condition.
			01	64 lines	
			02	96 lines	
			03	128 lines	
			04	160 lines	
			05	192 lines	
			06	224 lines	
			07	255 lines	
016	Individual transmission journal and call back message print	02		Individual transmission journal	Selection of print On/Off
			00	Not printed	
			01	Printed	
			02	Not printed	
			03	Printed	
017	Automatic journal print	01	00	No	Set 00 to disable automatic print.
			01	Yes	
020	Transmission attenuator (G3, G2)	10	00	0 dB	Select lower value to improve S/N when comm. failure often occurs.
			01	1 dB	
			02	2 dB	
			03	3 dB	
			04	4 dB	
			05	5 dB	
			06	6 dB	
			07	7 dB	
			08	8 dB	
			09	9 dB	
			10	10 dB	
			11	11 dB	
			12	12 dB	
			13	13 dB	
			14	14 dB	
			15	15 dB	

(Continued)

No.	Function	Default Data	Selection		Remarks
			Data	Description	
021	Reception attenuator (G3, G2)	00	00	0 dB	Select higher value to improve S/N when comm. failure often occurs.
			01	5 dB	
			02	10 dB	
			03	15 dB	
022	Transmission initial speed (G3)	03	00	2400 bps	Select lower value if failure often occurs.
			01	4800 bps	
			02	7200 bps	
			03	9600 bps	
023	Reception initial speed (G3)	03	00	2400 bps	Select lower value if failure often occurs.
			01	4800 bps	
			02	7200 bps	
			03	9600 bps	
024	TCF check	00	00	Normal	Select suitable value to improve picture quality at RX side.
			01	Severe	
025	Reception EQL (G3)	02	00	0 dB	Change Cable EQL depending on attenuation between PTT office and fax site.
			01	4 dB	
			02	8 dB	
			03	12 dB	
			04	16 dB	
			05	20 dB	
026	Transmission EQL (G3)	00	00	0 dB	Change depending on attenuation between PTT office and fax site.
			01	4 dB	
			02	8 dB	
			03	12 dB	

(Continued)

No.	Function	Default Data	Selection			Remarks
			Data	Description		
027	Reception EQL (G2)	02		Cable EQL	Link EQL	Change cable EQL depending on attenuation between PTT office and fax site.
			00	0 dB	0	
			01	4 dB	0	
			02	8 dB	0	
			03	12 dB	0	
			04	16 dB	0	
			05	20 dB	0	
			06	0 dB	1	
			07	4 dB	1	
			08	8 dB	1	
			09	12 dB	1	
			10	16 dB	1	
			11	20 dB	1	
			12	0 dB	2	
			13	4 dB	2	
			14	8 dB	2	
			15	12 dB	2	
			16	16 dB	2	
			17	20 dB	2	
028	Transmission EQL (G2)	00	00	0 dB		Change depending on attenuation between PTT office and fax site.
			01	4 dB		
			02	8 dB		
			03	12 dB		
029	V29 EP tone (Not conform to CCITT)	00	00	None		Select suitable parameter to avoid influence of echo.
			01	With phase C (non-STD)		
			02	With phase C and B (non-STD)		
			03	With phase C (both STD and non-STD)		
			04	With phase C and B (both STD and non-STD)		

(Continued)

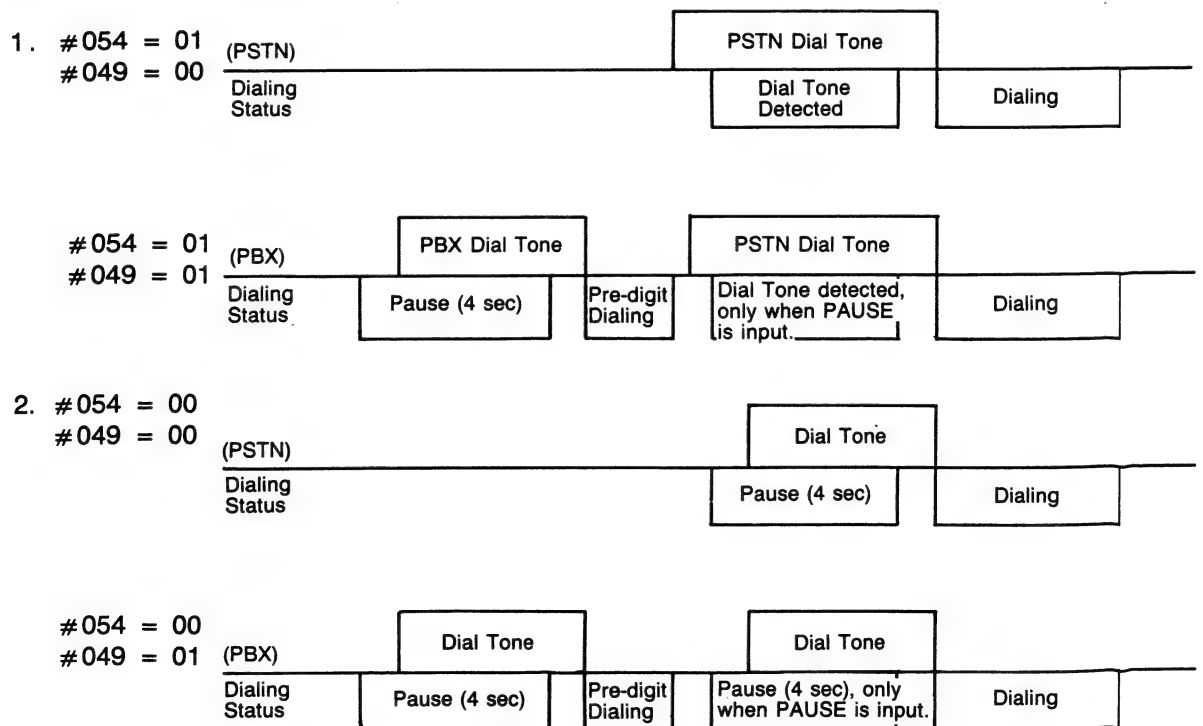
No.	Function	Default Data	Selection		Remarks
			Data	Description	
030	CED frequency	00	00	2100 Hz	Set 01 not to disable Echo Suppressor
			01	1100 Hz (Not conform to CCITT)	
032	G3 standard	00	00	Not fixed (G3 STD or non-STD)	Set 01 to fix G3 STD mode.
			01	Fixed (G3 STD only)	
033	CSI transmission	01	00	Not transmitted	Select suitable parameter when interface failure occurs.
			01	Transmitted	
034	TSI and/or CIG transmission	06	00	TSI: Not transmitted CIG: Not transmitted	Select suitable parameter when interface failure occurs.
			01	Regardless of CSI TSI: Not transmitted CIG: Transmitted	
			02	Regardless of CSI TSI: Transmitted CIG: Not transmitted	
			03	Regardless of CSI TSI: Transmitted CIG: Transmitted	
			04	Only reception of CSI TSI: Not transmitted CIG: Transmitted	
			05	Only reception of CSI TSI: Transmitted CIG: Not transmitted	
			06	Only reception of CSI TSI: Transmitted CIG: Transmitted	
035	Polling password check	00	00	Check	Set 00 in closed network use.
			01	No check	
036	Receiver protocol selection	00	00	Inhibit	Set 01 for fixing RX mode G3 or G2.
			01	Enable (No. 42 must be set 01)	
038	Preamble transmission after GI2	00	00	1 sec.	
			01	186 msec. (Not conform to CCITT)	
039	GC2 transmission timing	00	00	When CD is OFF	
			01	During GI2 reception (Not conform to CCITT)	

(Continued)

No.	Function	Default Data	Selection		Remarks
			Data	Description	
040	T1 timer for G2 transmission	00	00	35 sec.	Set 01 when GI is detected with delay from other machine.
			01	65 sec. (Not conform to CCITT)	
041	Speed/protocol (mode) display during communication	01	00	Not displayed	Change if necessary.
			01	Displayed	
042	Protocol selection and display in standby	00	00	Inhibit	Set 01 for selecting TX mode G3 or G2.
			01	Enable	
044	Off-Hook detection	00	00	Detect	Set 01 when back to back test is done.
			01	Not detect	
045	Remote diagnostic capability	01	00	No	Change if necessary.
			01	Yes	
048	Communication start-up condition (Transmission and polling)	00	00	Upon detection of first response (First NSF/CSI/DIS)	Set 01 to avoid influence by echo.
			01	Upon detection of second response (Second NSF/CSI/DIS)	

(Continued)

No.	Function	Default Data	Selection		Remarks
			Data	Description	
049	Direct exchange/PBX selection	00	00	Direct exchange (PSTN)	Set 01 when it is connected to PBX and No. 54 is 01. (See Note)
			01	PBX	
050	Dialing signal (pulse/tone)	00	00	10 pps	Select according to line capability at installation.
			01	20 pps	
			02	DTMF	
053	Busy tone detection	00	00	Not detect	Select suitable parameter.
			01	Detect	
054	Dial tone detection	00	00	Not detect	Select suitable parameter. (See Note)
			01	Detect	
055	Redial interval: X	03	00	30 sec.	Select if necessary (See Note).
			01	55 sec.	
			02	120 sec.	
			03	180 sec.	

Note:

(Continued)

No.	Function	Default Data	Selection		Remarks
			Data	Description	
057	Number of redials: N	02	00	0	Select if necessary.
			01	1	
			02	2	
			}	}	
			99	99	
058	Line monitor	00	00	Off	For maintenance purpose only
			01	On	
060	Pause Key Function	00	00	Pause	Select if necessary.
			01	Dial Tone Detection	
072	Relayed XMT & Confidential Comm. Functions.	00	00	None	
			01	Confidential Comm.	
			02	Relayed XMT	
			03	Confidential Comm. & Relayed XMT	
075	Automatic multi-station journal print	01	00	Not printed	Select if necessary.
			01	Printed	
078	On-Hook time between sequential communication calls	01	00	0 sec.	Select if necessary.
			01	5 sec.	
			02	10 sec.	
			03	60 sec.	
080	Short Protocol (Non-STD)	01	00	None	Set 00 to cancel short protocol (Non-STD).
			01	Short Protocol B	
081	MWS function	03	00	None	Set 00 to cancel MWS function (Non-STD).
			01	MWS	
			02	Invalid	
			03	MWS + MWS Type II	

(Continued)

No.	Function	Default Data	Selection		Remarks
			Data	Description	
087	TIME between CED and 300 bps signal	00	00	75 msec.	Set 01 or 02 to enable echo suppressor.
			01	500 msec. (Not conform to CCITT)	
			02	1 sec. (Not conform to CCITT)	
088	G3 coding scheme	01	00	MH	Set 00 to disable MR.
			01	MH + MR	
090	CNG in Phase-A	02	00	Not transmitted (Not conform to CCITT)	Set 00 if CNG causes transmission failure.
			01	Transmitted (One-touch/Abbr. dialing)	
			02	Transmitted (One-touch/Abbr. dialing/Direct dialing)	
091	Approx. Number of rings before auto-answering	01	01	1	Change if necessary.
			02	2	
			03	3	
			∞	∞	
			08	8	
092	Identification column in Journal Print	01	00	ID preferred	Change if necessary.
			01	Station name preferred	
094	Relayed XMT & Conf. Comm. Journals	03	00	None	Change if necessary.
			01	Relayed XMT Journal Printed	
			02	Conf. Comm. Journal Printed	
			03	Both printed	
095	Stop button while Journal auto-printing	01	00	Accepted	Change if necessary.
			01	Not Accepted	
096	Handset	00	00	Not Attached	
			01	Attached	

3.2.3 Test Mode No. 3 (RAM Data Print)

The list of all function parameters and RAM data can be printed out by the following procedure.

Step	Operation or unit condition	LCD display
1	Standby	15-01-1989 15:00
2	Press the FUNCTION button, then press 7 .	SET MODE NO. =
3	Press the TEL/DIAL button four times and then press the * button.	TEST MODE NO. =
4	Press 3 .	TEST MODE NO. = 3
5	Press the START button. In this step, the list of function parameters and RAM data is pointed out.	TEST MODE * PRINT RAM DATA *
6	Press the STOP button to return to standby.	15-01-1989 15:00

Note:

The list of all function parameters is printed out on the first page and then RAM data is printed out on the second page.

The second page is for factory use only.

RAM DATA PRINT FORMAT (EXAMPLE) (P1: Function Parameter)

***** UF-140 ***** -RAM DATA- ***** (1) (2) (3)
DATE 29-01-1989 ***** TIME 17:52 ***** P.1

#000 = 01	#030 = 00	#060 = 00	#090 = 02
#001 = 01	#031 = --	#061 = --	#091 = 01
#002 = --	#032 = 00	#062 = --	#092 = 01
#003 = 00	#033 = 01	#063 = --	#093 = --
#004 = --	#034 = 06	#064 = --	#094 = 03
#005 = 02	#035 = 00	#065 = --	#095 = 01
#006 = 02	#036 = 00	#066 = --	#096 = 00
#007 = 00	#037 = --	#067 = --	#097 = --
#008 = 00	#038 = 00	#068 = --	#098 = --
#009 = --	#039 = 00	#069 = --	#099 = --
#010 = --	#040 = 00	#070 = --	#100 = --
#011 = 02	#041 = 01	#071 = --	#101 = --
#012 = 01	#042 = 00	#072 = 00	#102 = --
#013 = --	#043 = --	#073 = --	#103 = --
#014 = --	#044 = 00	#074 = --	#104 = --
#015 = --	#045 = 01	#075 = 01	#105 = --
#016 = 02	#046 = --	#076 = --	#106 = --
#017 = 01	#047 = --	#077 = --	#107 = --
#018 = --	#048 = 00	#078 = 01	#108 = --
#019 = --	#049 = 00	#079 = --	#109 = --
#020 = 10	#050 = 00	#080 = 01	#110 = --
#021 = 00	#051 = --	#081 = 03	#111 = --
#022 = 03	#052 = --	#082 = --	#112 = --
#023 = 03	#053 = 00	#083 = --	#113 = --
#024 = 00	#054 = 00	#084 = --	#114 = --
#025 = 02	#055 = 03	#085 = --	#115 = --
#026 = 00	#056 = --	#086 = --	#116 = --
#027 = 02	#057 = 02	#087 = 00	#117 = --
#028 = 00	#058 = 00	#088 = 01	#118 = --
#029 = 00	#059 = --	#089 = --	#119 = --

TRANSMIT PAGE COUNTER : 000024 (4)

RECEIVE PAGE COUNTER : 000014 (5)

(6)
ROM=C140AC S1=0 S2=0

(7)
C140AZS50

(8)
-UF-140 NY

***** -PANASONIC- ***** (9)
1 212 111 1234- *****

***** UF-140 ***** -RAM DATA- ***** DATE 29-01-1989 ***** TIME 17:52 ***** P.2

000	CC	C0	00	0B	93	F0	60	09
	38	03	05	00	00	00	90	48
010	00	12	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
020	01	96	0F	44	00	1E	F0	53
	80	08	C2	50	0C	12	21	97
030	00	0D	07	04	0A	40	05	21
	00	00	03	00	00	00	00	00
040	00	00	00	00	00	00	00	00
	0B	01	00	00	00	00	00	78
050	01	28	0E	14	53	0C	01	01
	50	14	03	E3	8B	E1	38	38
060	01	60	10	20	50	14	B4	00
	05	3C	3D	5A	14	14	18	41
070	20	0C	50	F0	05	05	18	0E
	40	1C	1C	70	AC	31	1F	00
080	3C	00	00	00	00	1E	1E	00
	28	14	3C	00	00	00	00	00
090	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
0A0	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
0B0	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
0C0	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
0D0	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
0E0	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00
0F0	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	01	00

ROM=C140AC S1=0 S2=0

C140A2550

-UF-140 NV

***** -PANASONIC- ***** 1 212 111-1234- *****

Explanation of RAM DATA PRINT

- (1) Print-out date (Date-Month-Year)
- (2) Print-out time (Hour : Minute)
- (3) Page number
 - P.1 List of all function parameters (refer to Test Mode 1)
 - P.2 RAM data (Manufacturer use only)
- (4) Transmit page counter
- (5) Receive page counter
- (6) ROM label and revision numbers
- (7) Panel CPU label and revision number
- (8) LOGO
- (9) ID number

3.2.4 Test Mode No. 5 (Signal Generation)

Signal can be output to the line in the following procedure.

Step	Operation or unit condition	LCD display
1	Standby	15-01-1989 15:00
2	Press the FUNCTION button, and press 7 .	SET MODE NO.=
3	Press the TEL/DIAL button four times and then press the * button once.	TEST MODE NO.=
4	Press 5 .	TEST MODE NO.= 5
5	Press the START button. Press the MODE - or + button to select signals. (See Note.)	TEST MODE XMT TONE 9600
6	Press the STOP button twice to return the unit to standby.	15-01-1989 15:00

Note:

In the step 5, this unit can generate the signals listed in Table 3.4

- Press the **START** button, the signal is generated. "*" is displayed during the transmission.
- Press the **STOP** button to stop the generation.
- Press the **START** button again, the signal is generated again.

TEST MODE	XMT TONE
9600	*

Displayed during transmission

Output indication

Table 3.4 Generating Signal Table

Output indication	Output signal
9600	V.29 9600 bps Data (mark: 1)
7200	V.29 7200 bps Data (mark: 1)
4800	V.27ter 4800 bps Data (mark: 1)
2400	V.27ter 2400 bps Data (mark: 1)
300	300 bps Flag
G2 P	G2 phase signal
G2 C	G2 white picture signal
462	462 Hz tonal signal
1100	1100 Hz tonal signal
1650	1650 Hz tonal signal
1850	1850 Hz tonal signal
2100	2100 Hz tonal signal
LINE	No signal (Relay RL1 and RL3 on)

3.2.5 Test Mode No. 6 (RAM Initialization)

Initialize the RAM to store the default value of function parameters in the following procedure. Note that this operation should be performed at the installation of the unit.

Step	Operation or unit condition	LCD display
1	Standby	15-01-1989 15:00
2	Press the FUNCTION , and press 7 .	SET MODE NO. = █
3	Press the TEL/DIAL button four times and then press the * button.	TEST MODE NO. = █
4	Press 6 .	TEST MODE NO. = 6█
5	Press the START button.	TEST MODE * INITIALIZE RAM *
6	Press the * button. Default value of function parameters is stored.	TEST MODE NO. = █
7	Press the STOP button twice to return to standby.	15-01-1989 15:00

Note:

In step 6, the following RAM initialization is also possible in addition to ***** button.

Buttons to be pressed in step 6	RAM data to be cleared
*	Default value of function parameters is stored.
1 0	ID, LOGO, Polling Password
1 2	Journal contents
1 3	One-touch and Abbr. dial numbers
1 4	Program Key contents
9 9	All the functions above
STOP	Default value is not stored and LCD shows the display in step 3.

3.2.6 Test Mode No. 7 (DTMF Signal Generation)

The single DTMF tone can be generated in the following procedure.

Step	Operation or unit condition	LCD display
1	Standby	15-01-1989 15:00
2	Press the FUNCTION button, and press 7 .	SET MODE NO. =
3	Press the TEL/DIAL button four times and then press the * button.	TEST MODE NO. =
4	Press 7 .	TEST MODE NO. = 7
5	Press the START button.	TEST MODE MF TONE 6 97
6	Press the START button. Signal is generated and * is displayed.	TEST MODE MF TONE 6 97 *
7	Press the STOP button to stop the transmission of tone.	TEST MODE MF TONE 6 97
8	Press the MODE - or + button to select next tone and repeat steps 5, 6 and 7. (Refer to the frequency of signals shown on page 3-32.)	TEST MODE MF TONE
9	Press the STOP button twice when test is completed and return the unit to standby.	15-01-1989 15:00

Note:

1	697 Hz
2	770 Hz
3	852 Hz
4	941 Hz

5	1209 Hz
6	1336 Hz
7	1477 Hz

Chapter 4 MAINTENANCE

CHAPTER 4 MAINTENANCE

CONTENTS

CHAPTER 4 GENERAL DESCRIPTION

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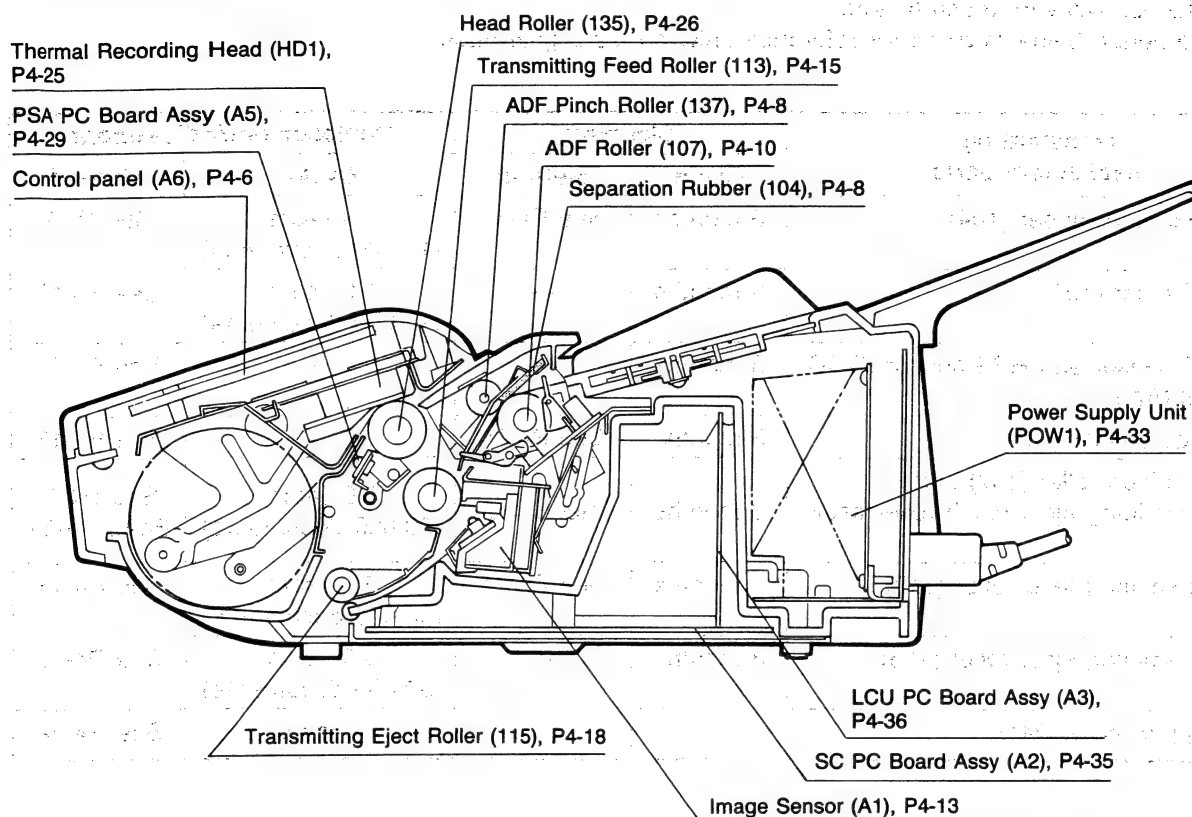
CHAPTER 4 MAINTENANCE

4.1 General

The following maintenance and troubleshooting should be carried out.

- (1) Preventive maintenance
 - Check the unit regularly and clean dirty parts, if necessary.
- (2) Check the faulty condition
 - Observe the fault symptom, the process of occurrence of failure, etc.
 - If the unit is in an operable state, perform a copy test, self test, and communication test.
- (3) Check the faulty unit
 - Carry out a copy test, self test, and communication test, and judge from the line which is responsible for the trouble, transmitter side or receiver side.
- (4) Search for the cause
 - Check for the cause of trouble referring to trouble code or error code.
- (5) Repair
 - Repair or replace the defective part which caused the trouble.
 - Take corrective measures against the reoccurrence of the same trouble.
- (6) Check at recovery
 - Upon completion of the repair or replacement, perform a copy test, self test, and communication test to check if the unit works properly.
- (7) Record for statistics
 - Record the actions taken against the trouble for later reference.

4.2 Preventive Maintenance Check List



In addition to the above illustration, refer to the description of replacing the following parts:

1. Covers	4-4
2. ADF Sensor and RPS Sensor on the DOC PC Board Assy (A4)	4-12
3. Transmitting Eject Pinch Roller Assy (6)	4-20
4. Stepper Motor (for Transmitting) (M1)	4-22
5. Gears (for Transmitting)	4-24
6. Stepper Motor (for Receiving) (M2)	4-30
7. Gears (for Receiving)	4-32
8. Speaker (SP1)	4-34

Maintenance List

The cycle period outlined below is a general guideline for maintenance. The example list is for an average usage of 50 transmitted and received documents per day. Of course, the environmental conditions and actual use will vary these factors.

The cycle period below is given for reference only, not as a guarantee.

Transmitting mechanism parts	Cleaning		Replacement/adjustment	
	Cycle	Method	Cycle	Method
1 Separation rubber (104)	3 months	See P4-8	1-3 years (10,000 documents)	See P4-7
2 ADF roller (107)	3 months	—	1-3 years (10,000 documents)	See P4-10
3 ADF sensor and RPS sensor (DOC PCB (A4))	3 months	—	—	See P4-12
4 Image sensor (A1)	3 months	See P4-14	—	See P4-13
5 ADF pinch roller (137) and Transmitting eject pinch roller assy (6)	3 months	See P4-8	3-5 years (30,000 documents)	See P4-7, P4-9, P4-20
6 Transmitting feed roller (113)	3 months	See P4-17	3-5 years (30,000 documents)	See P4-15
7 Transmitting eject roller (115)	3 months	—	3-5 years (30,000 documents)	See P4-18
8 Stepper motor (M1)	—	—	5 years	See P4-22

Receiving mechanism parts				
9 Thermal recording head (HD1)	3 months	—	4 years	See P4-25
10 Head roller (135)	3 months	See P4-28	3 years (20,000 documents)	See P4-26
11 PSA sensor (A5)	3 months	See P4-29	—	See P4-29
12 Stepper motor (M2)	—	—	5 years	See P4-30
13 Microswitch (SEN 1)	—	—	5 years	—

4.3 Replacement and Adjustment

4.3.1 Covers

4.3.1.1 Upper Cover (163), Side Covers (R) (161) and (L) (162)

Removal

- (1) Remove the sub tray (170) from the upper cover (163) by sliding it upwards.

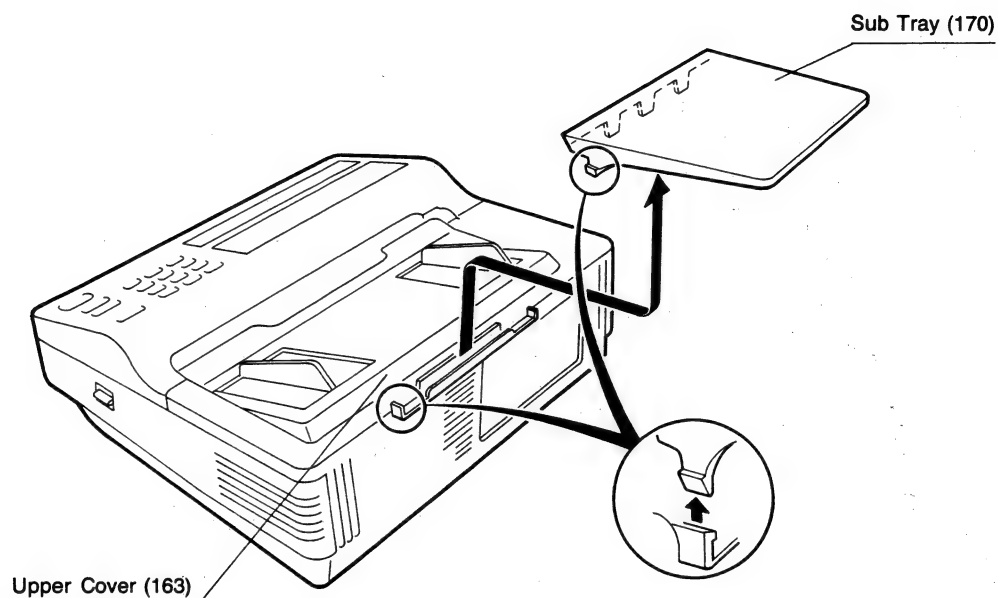


Figure 4.3.1

- (2) Press the latch button on the right side cover to open the receiving unit.
(3) Remove the two screws (412) from the rear panel. Then, lifting the edge of the upper cover (163), draw out the five ribs of the upper cover (163) inserted into the main body.

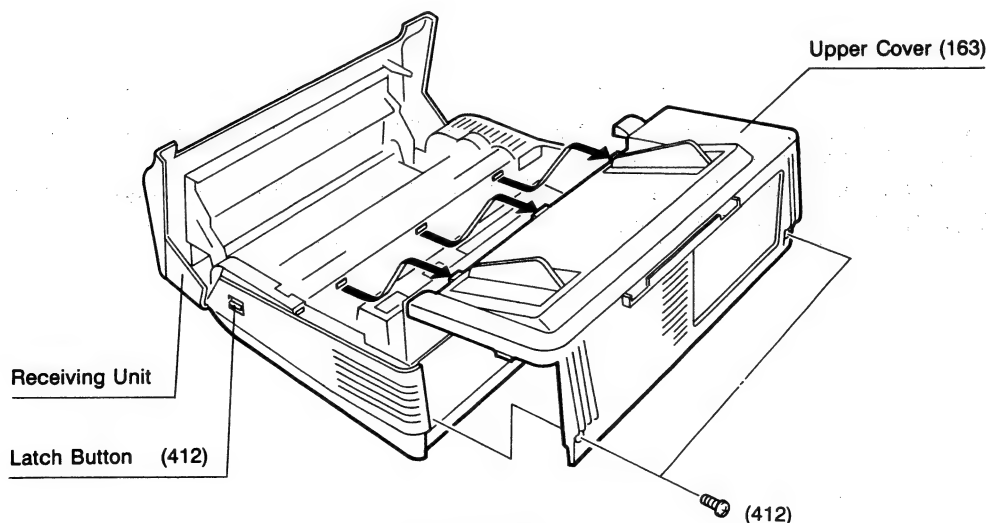


Figure 4.3.2

- (4) Remove the screws (412) from the upper front part of each side cover, and remove the side covers (R) (161) and side cover (L) (162) by lifting them upwards.
- (5) To reinstall, reverse the removal procedures.

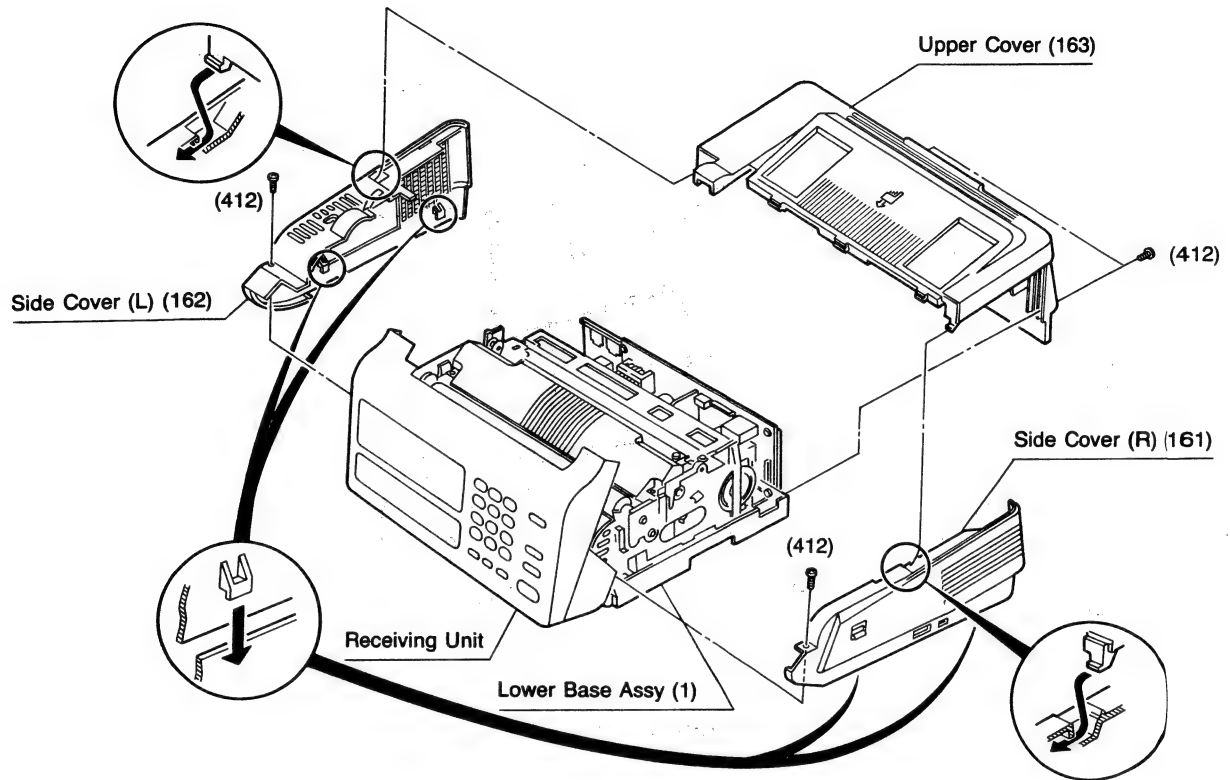


Figure 4.3.3

Notes:

- (1) Install the side covers (R) (161) and (L) (162) so that brackets (two each of right and left sides) are fitted in the lower base assy (1).
- (2) Set the harnesses into their guides, and ensure that they will not be caught by the side covers (R) (161), (L) (162), and receiving unit.

4.3.1.2 Receiving Unit

Removal

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Squeeze the leg of the receiving chassis (147) inwards slightly and detach from side plate (L) and (R).
- (4) Undo the right side harness from their guide.
- (5) Unplug the connector CNP9.
- (6) Remove four screws (416) and detach the receiving unit from the receiving chassis (147).
- (7) Disassemble the control panel (A6) and front cover by removing the five screws (416).
- (8) To reinstall, reverse the removal procedures.

Receiving Unit (Control Panel + Front Cover)

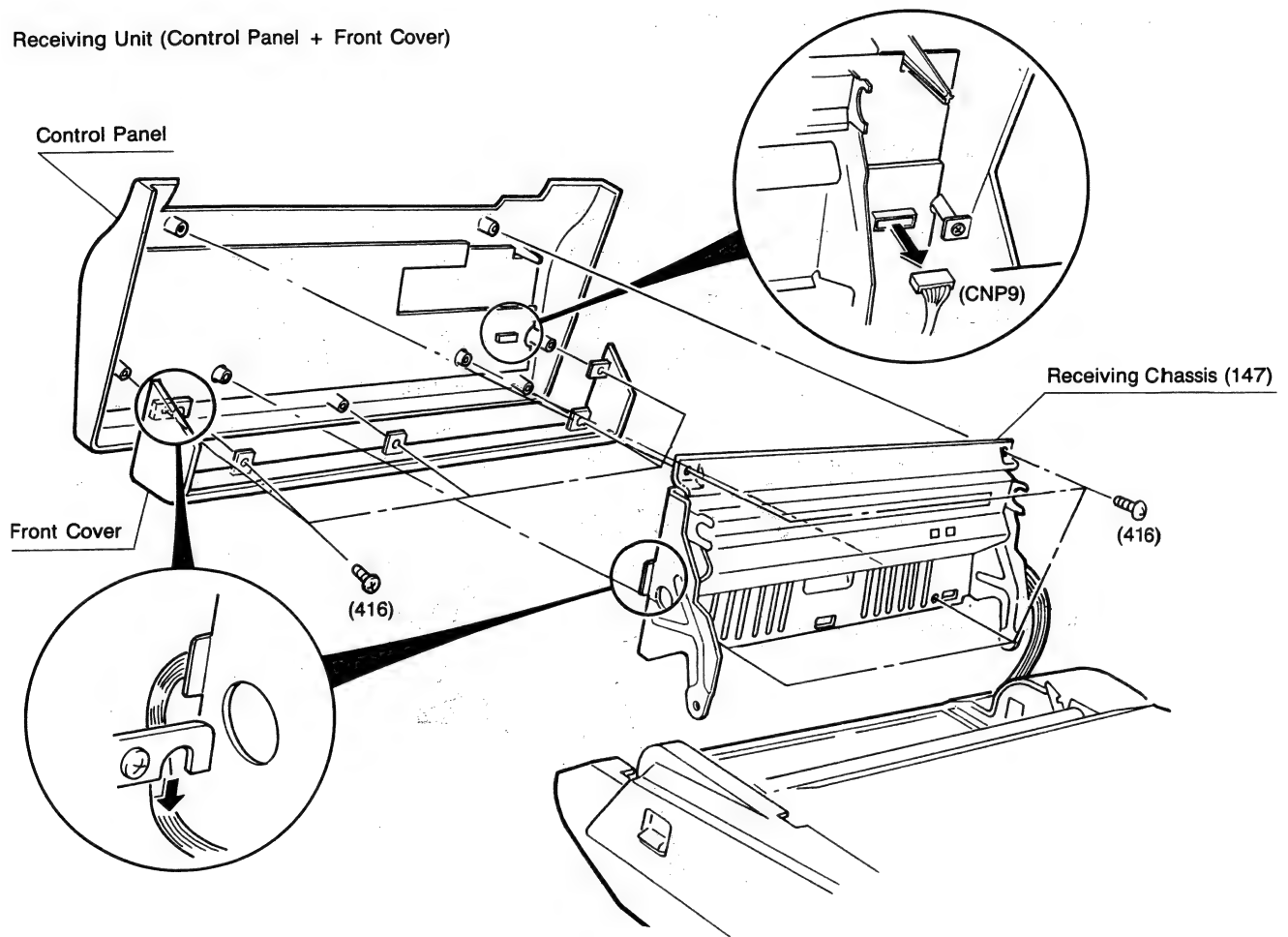


Figure 4.3.4

Notes:

- (1) When assembling the receiving unit and receiving chassis, bundle and replace the left and right side harnesses under the plane projections located on both sides of the receiving chassis and in the semicircular notch of the front cover (see figure).
- (2) Be sure to plug the connector CNP9 securely when reinstalling.

4.3.2 Mechanical Parts

4.3.2.1 ADF Unit

Replacement

- (1) Open the receiving unit.
- (2) Remove the two screws (412) and remove the ADF cover (167).
- (3) Press the two black tabs located on both sides of the ADF unit outwards simultaneously and gently. Open the ADF unit.
- (4) Using 2 mm philips screwdriver, remove the two screws (405).
The separation rubber (104), ADF pinch roller (137), ADF guide plate (103), separation plate (178) and ADF pinch spring plate (105) are separated.
- (5) To reinstall, reverse the removal procedures.

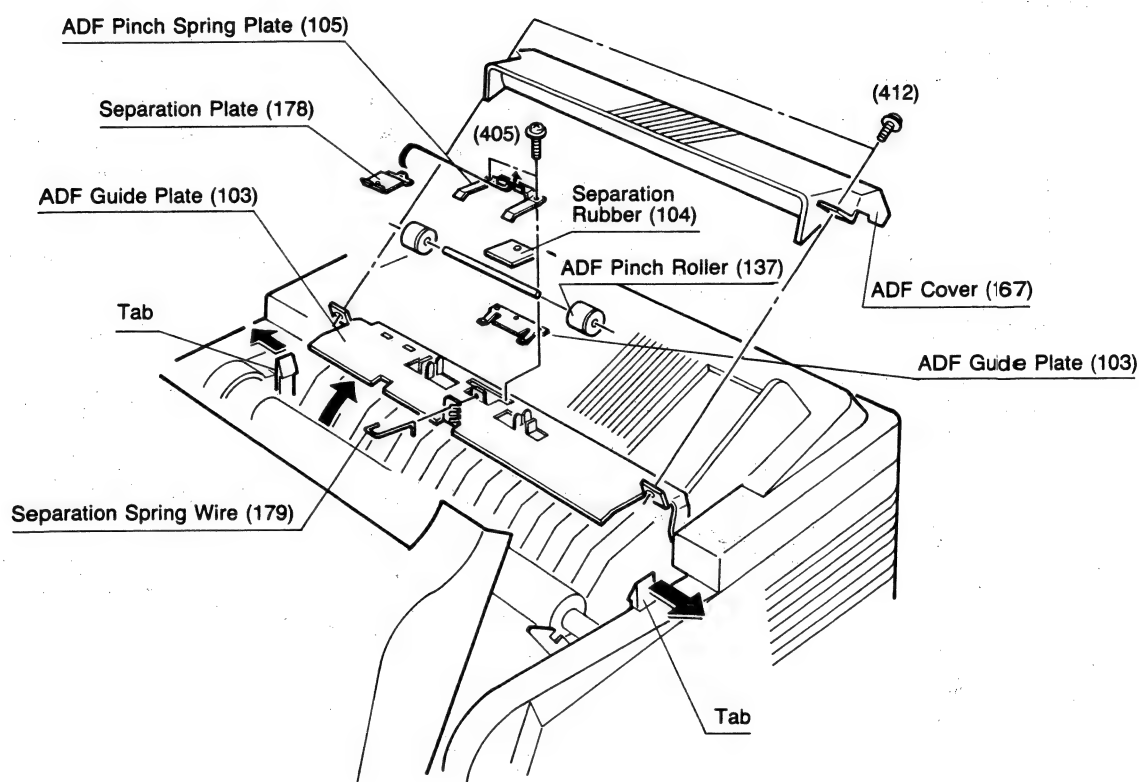


Figure 4.3.5

Notes:

- (1) When replacing the separation rubber, place the rough face downwards.
- (2) Construct the units as shown below.
- (3) The ADF guide plate (103) is quite thin. Therefore, handle it carefully so as not to bend when replacing the units.
- (4) The covers are not necessary to remove when replacing the parts described above.

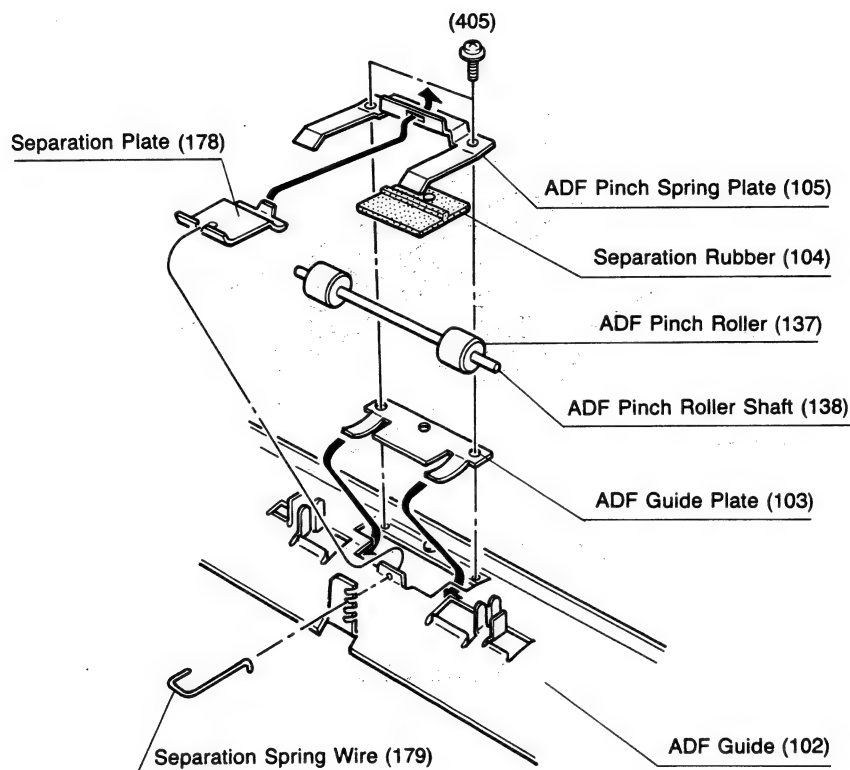


Figure 4.3.6

Cleaning

Clean the separation rubber (104) using soft cloth dampened with ethyl alcohol and file the selection part with sand paper (#150).

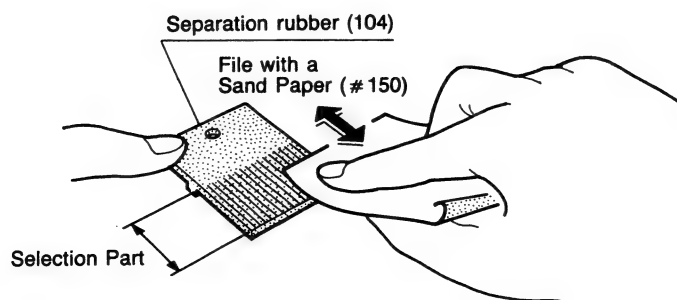


Figure 4.3.7

Adjustment

Use Separation spring wire (179) when adjusting the separating force of the separation rubber (104) to prevent insertion failure.

- (1) Remove the ADF cover (167). (See Figure 4.3.5.)
- (2) To change the separating force, move the rod vertically and set it in the desired notch position while sliding it to the right slightly by pinching the tip of the rod with your fingers.
- (3) Adjust the rod setting position into a balanced condition depending on the single or multiple document feeding.
Note that the notch position is divided four, and setting the higher notch position increases the separating force.

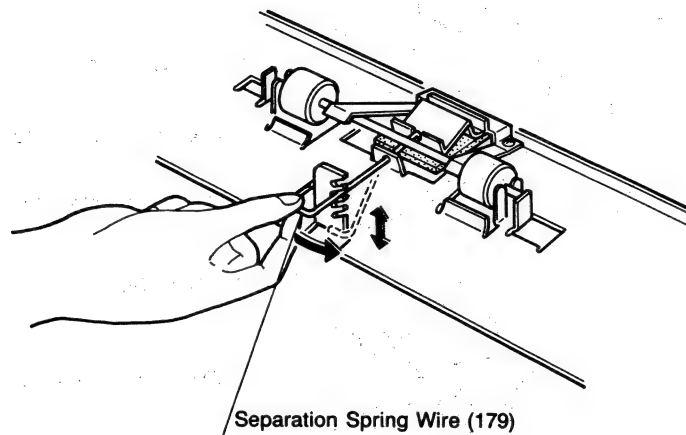


Figure 4.3.8

Note:

Separation Spring Wire (179) is preset at the third notch from the bottom at the factory. If the machine does not feed documents smoothly, set the wire at the first (bottom) or second notch. If the machine feeds two or more pages at a time, set the wire at the fourth notch.

4.3.2.2 ADF Roller (107)

Replacement

- (1) Open the receiving unit.
- (2) Remove the cover. (See paragraph 4.3.1.1.)
- (3) Press the two black tabs located on both sides of the ADF unit outwards simultaneously and gently. Open the ADF unit.
- (4) Remove the two plastic rivets (414) and then remove the ADF guide board (106) from the side plates.
- (5) Lift and remove the ADF roller (107).
- (6) To reinstall, reverse the removal procedures.

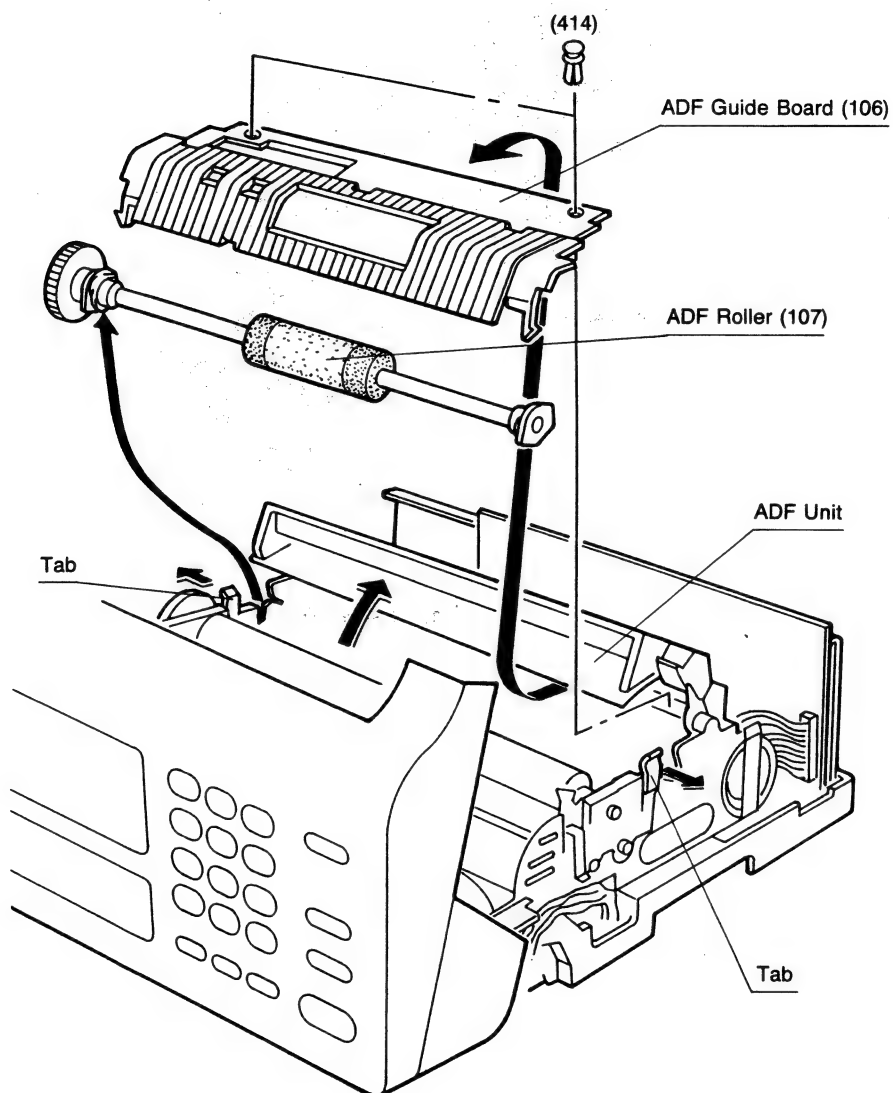


Figure 4.3.9

Notes:

- (1) When replacing the ADF roller (107), be sure that the D8 pillow (120) fits to the shape of the notch of the side plate as shown below.
- (2) When replacing the ADF guide board (106), lower it until its claws fit into the holes in the side plate as shown below.

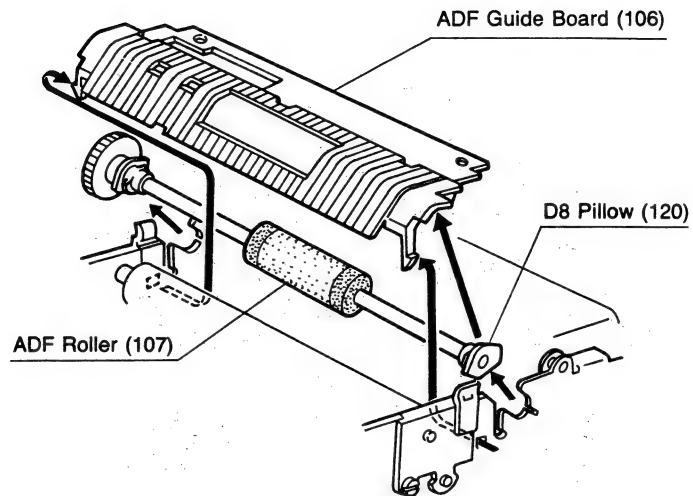


Figure 4.3.10

4.3.2.3 ADF Sensor and RPS Sensor on the DOC PC Board Assy (A4)

Replacement

- (1) Open the receiving unit.
- (2) Remove the cover. (See paragraph 4.3.1.1.)
- (3) Open the ADF unit.
- (4) Remove the two plastic rivets (414) and then remove the ADF guide board (106) from the main body.
- (5) Remove the two plastic rivets (414), unplug connector CNP24 from the DOC PC board assy (A4) and take out the DOC PC board assy (A4) from the main body.
- (6) To reinstall, reverse the removal procedures.

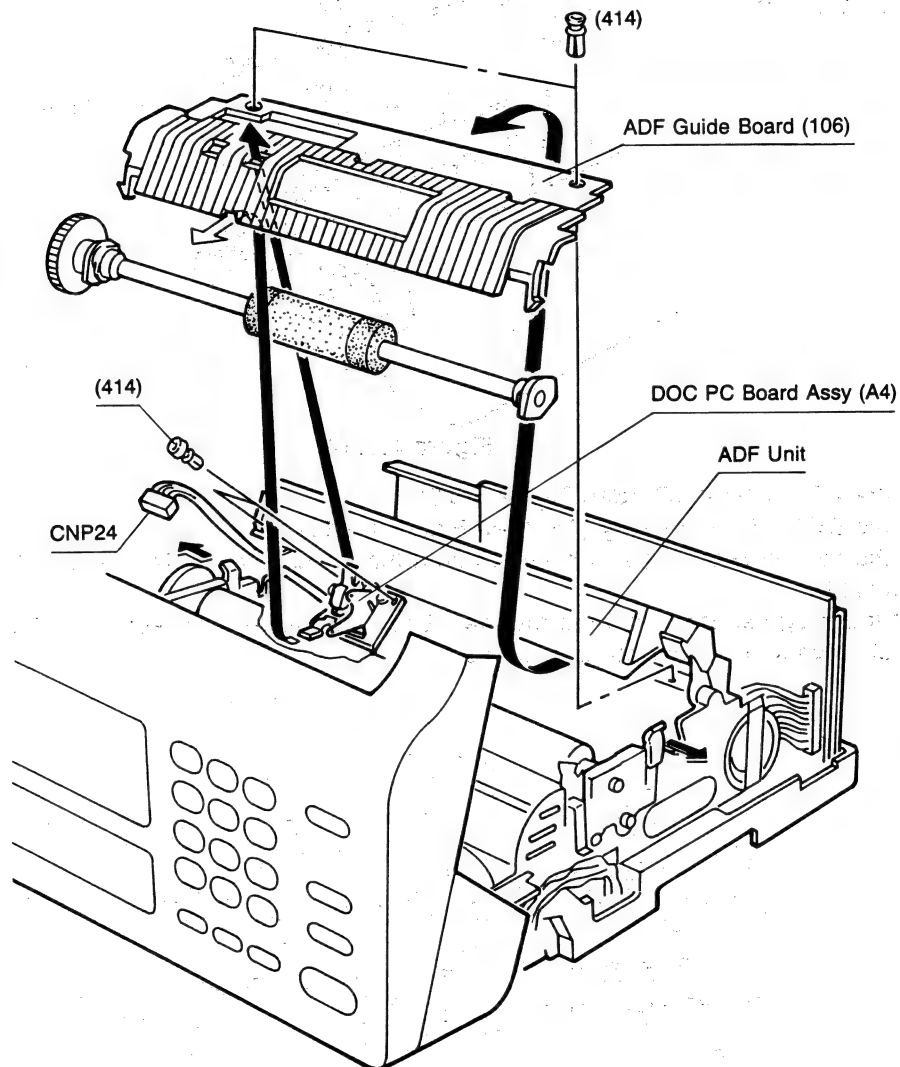


Figure 4.3.11

Note:

When replacing the ADF and RPS sensors, take care that the actuators of each sensor appear from the window of the ADF guide board (106).

4.3.2.4 Image Sensor (A1)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers (See paragraph 4.3.1.1.).
- (3) Open the ADF unit.
- (4) First, remove the screw L, stopper (180) and screw R, stopper (181), then remove the head roller (135) and transmitting feed roller (113).

Note:

Do not screw Screw L, Stopper (180) and Screw R, Stopper (181) in too tight.

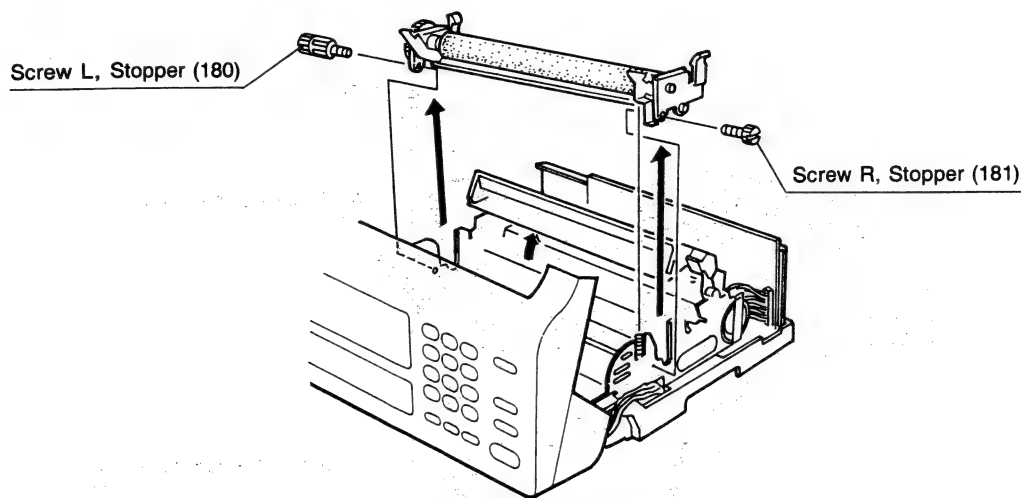


Figure 4.3.12

- (5) Remove the ADF roller (107), (See Figure 4.3.9).
- (6) Remove the DOC PC board assy (A4) (See Figure 4.3.11).
- (7) Remove the two screws (407) which secure both the image sensor plate spring (122) and ADF sensor set board (112).
- (8) Take out the image sensor unit from the main body and unplug connectors CNP5 and CNP6.
- (9) To reinstall, reverse the removal procedures.

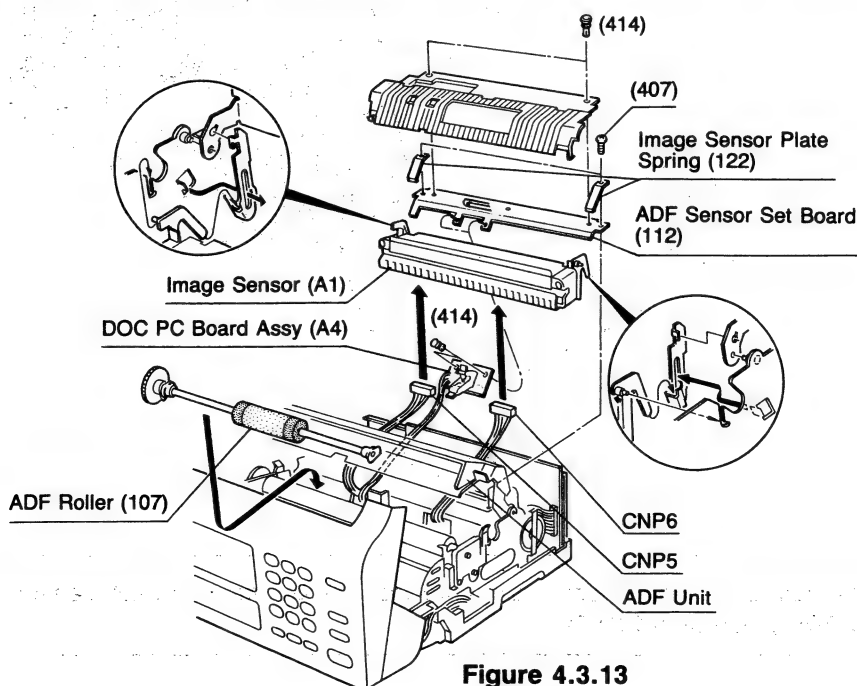


Figure 4.3.13

Note:

Be sure to hook the image sensor arms (145 and 146) onto the image sensor relieve plates (110 and 111) securely, and insert the pins of the image sensor arms into the grooves of side frame and lower the unit along the grooves.

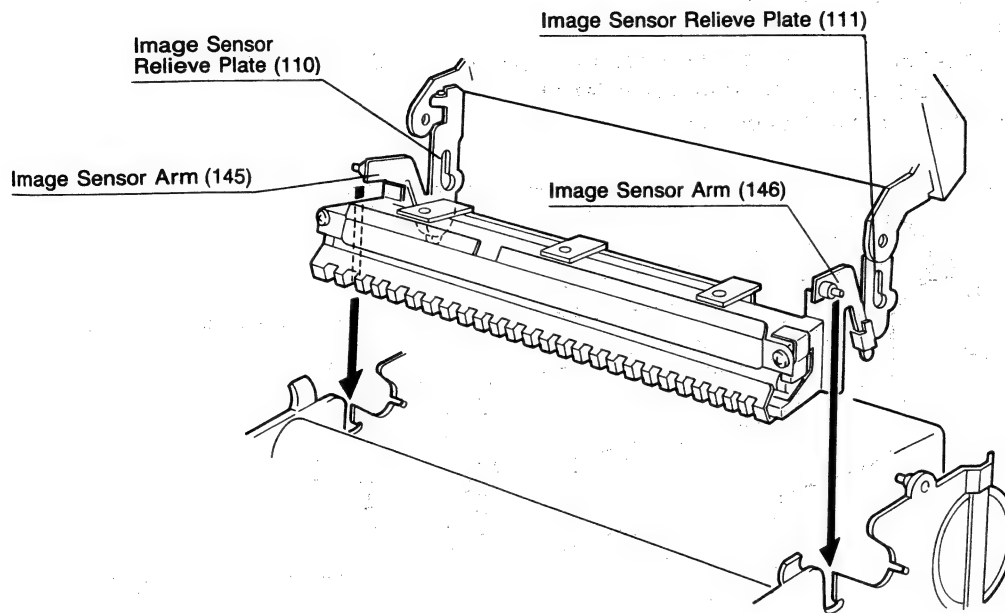


Figure 4.3.14

Cleaning

- (1) Remove the image sensor (A1). (See Figure 4.3.13.)
- (2) Clean the optical source part and read-out part of image sensor (A1) with the soft cloth soaked with ethyl alcohol as shown in the illustration below.

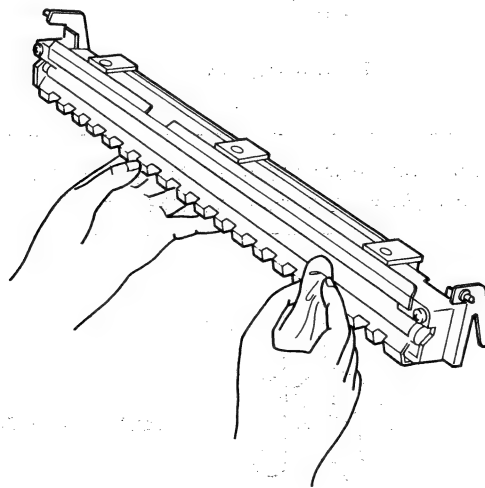


Figure 4.3.15

4.3.2.5 Transmitting Feed Roller (113)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers (see paragraph 4.3.1.1).
- (3) Open the ADF unit.
- (4) Remove the two stopper screws (180, 181) and remove the unit on which both of head roller (135) and transmitting feed roller (113) are installed.
- (5) Remove feed gear (124).
- (6) Remove two E-Rings (413) and then remove head roller pillow (L)(118) and (R)(119).
- (7) Take out transmitting feed roller (113) from this roller unit.
- (8) To reinstall, reverse the removal procedures.

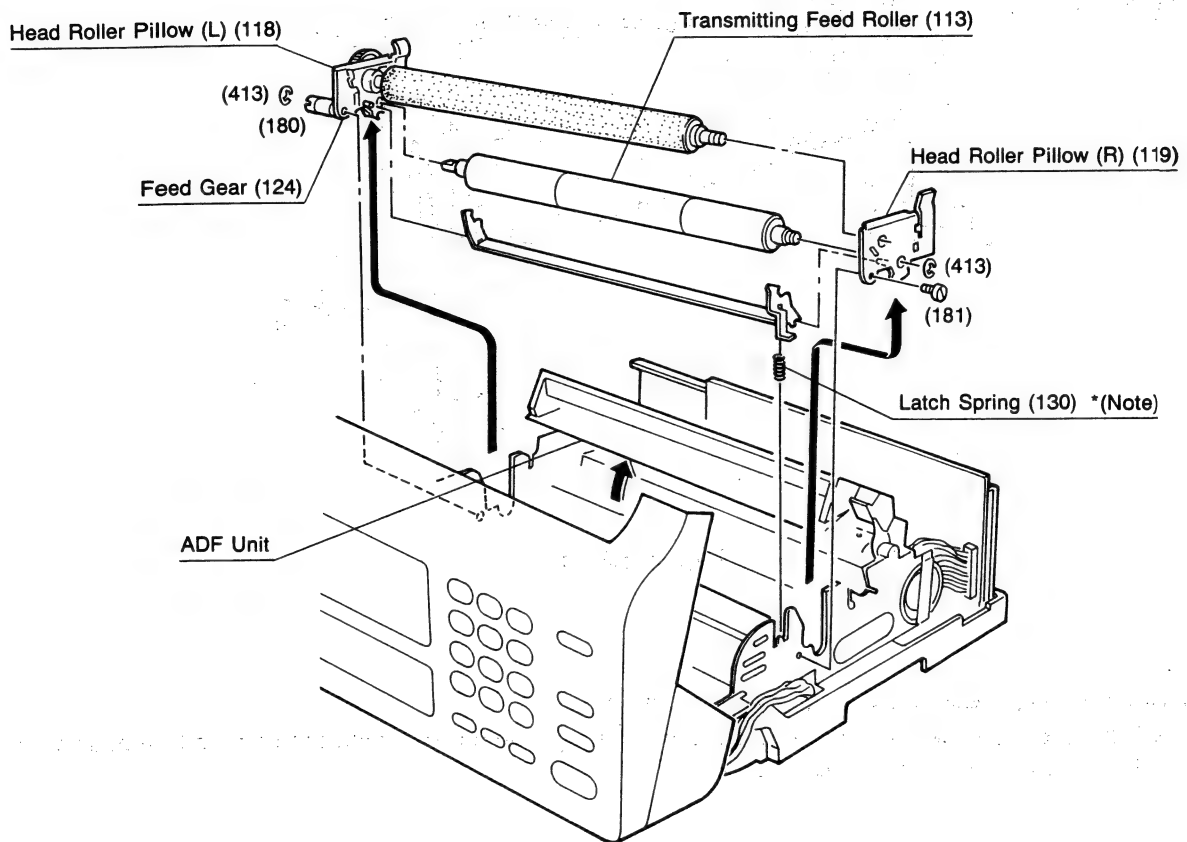


Figure 4.3.16

Note:

- (1) When lifting and removing the roller unit from the main body, the latch spring (130) on the side plate (R) (101) is easy to miss. Therefore care must be taken for this matter.

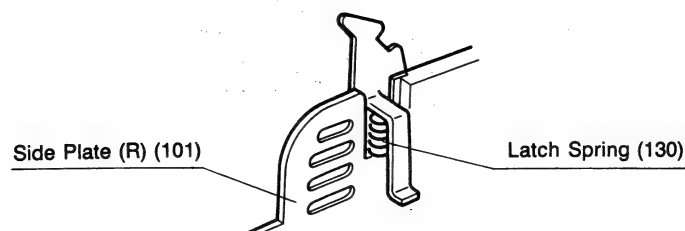


Figure 4.3.17

Note:

- (2) The same feed gears (124) are used in the head roller (135) and the transmitting feed roller (113). They should be installed in the reversed direction in the shaft of the each roller.

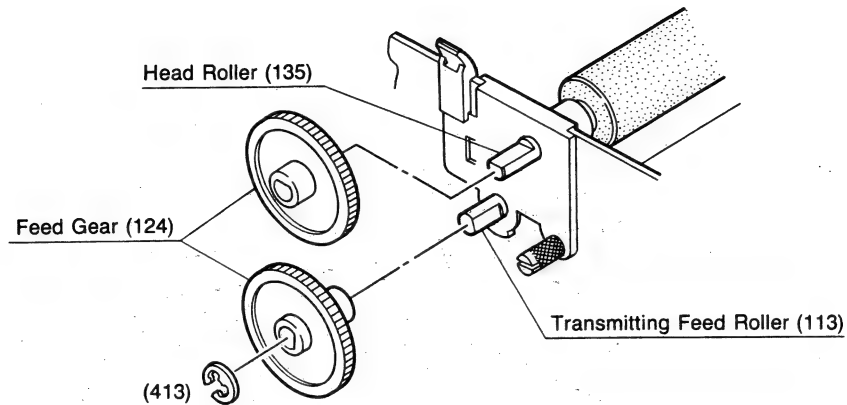


Figure 4.3.18

Note:

- (3) Take care of installing method (direction and opposite component) when reinstalling the head roller pillows (118 and 119) to the side plates (R) (101) and (L) (100).

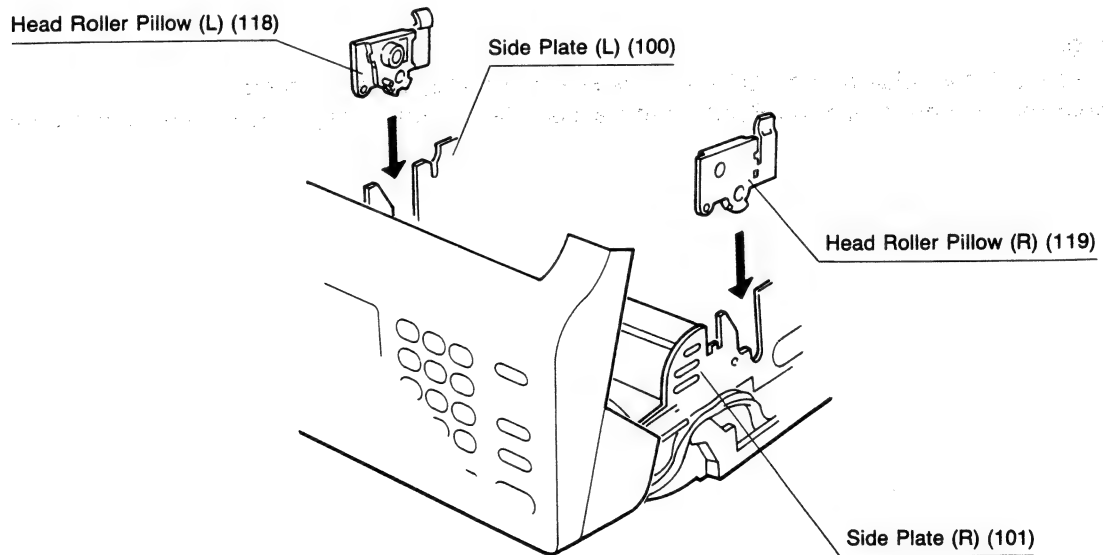


Figure 4.3.19

Cleaning

Wipe the transmitting feed roller (113) (gray roller) gently with a soft clean cloth soaked with ethyl alcohol, while rotating the roller slowly towards the front of the machine with both hands.

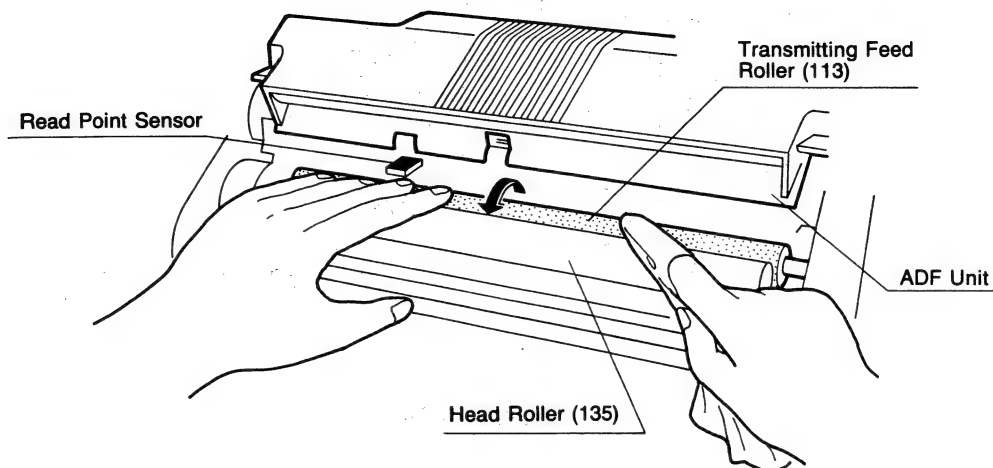


Figure 4.3.20

Warning!

1. Don't touch the edge of the ADF unit. It is sharp and may cut your hands.
2. Avoid rough contact with the Read Point Sensor. Hard contact may cause damage to the sensor unit.

4.3.2.6 Transmitting Eject Roller (115)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (407) and take out the motor unit. (See Figure 4.3.29.)
- (4) Remove four screws (408) which secure the mechanical assy, and lift the front end of it up.
- (5) Remove the transmitting eject gear (125) and two D6 pillows (144), and then remove the transmitting eject roller (115).
- (6) To reinstall, reverse the removal procedures.

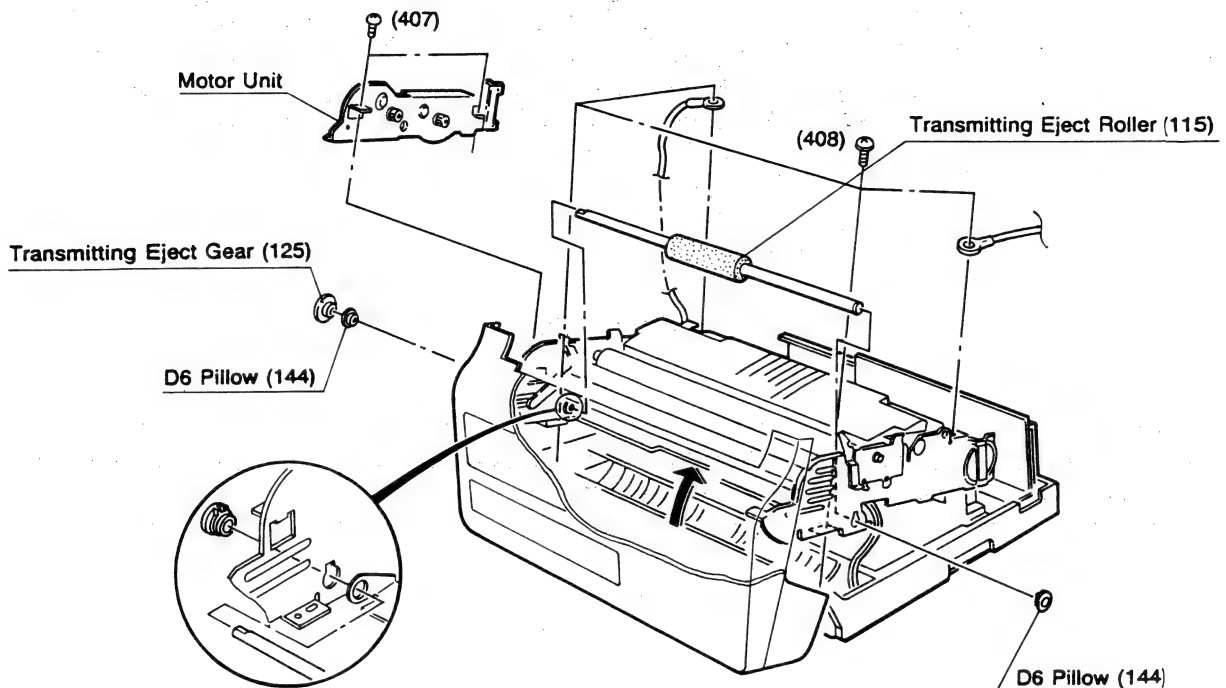


Figure 4.3.21

Notes:

- (1) When replacing the transmitting eject roller (115), the transmitting eject guide plate (2) is removed together.
- (2) Insert the D6 pillows (144) into the holes of the side plates and transmitting eject guide plate (2) so that they just fit to the shape of plate's holes.

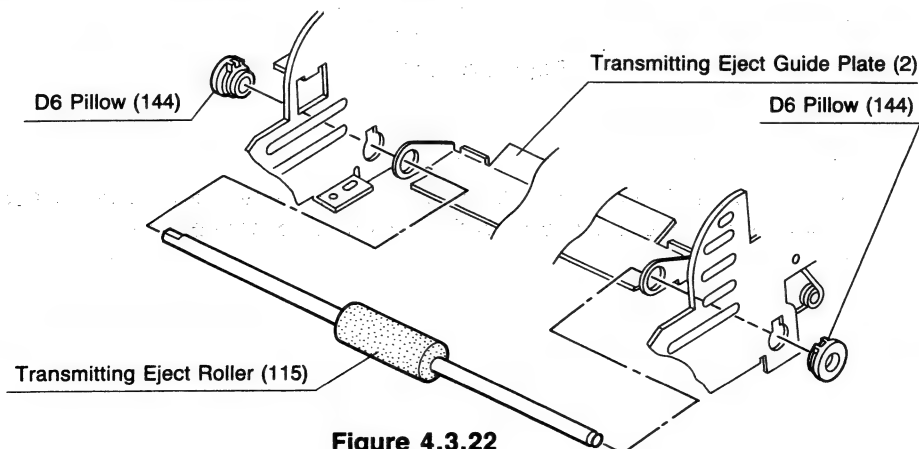


Figure 4.3.22

Note:

- (3) The mechanical assy is secured by four screws (408).

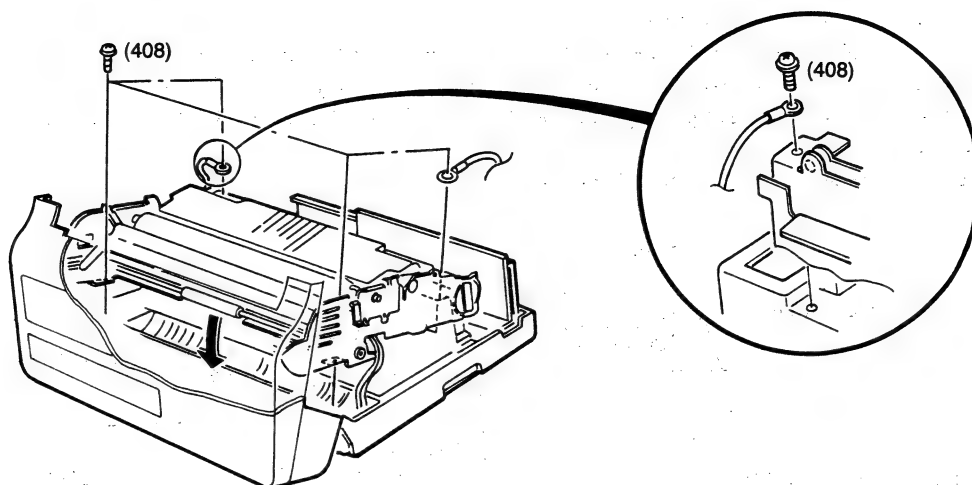


Figure 4.3.23

Note:

- (4) The holes of side plates (L) and (R) (100 and 101), located near the front two screws, must be fitted to the projection of the lower base assy (1).

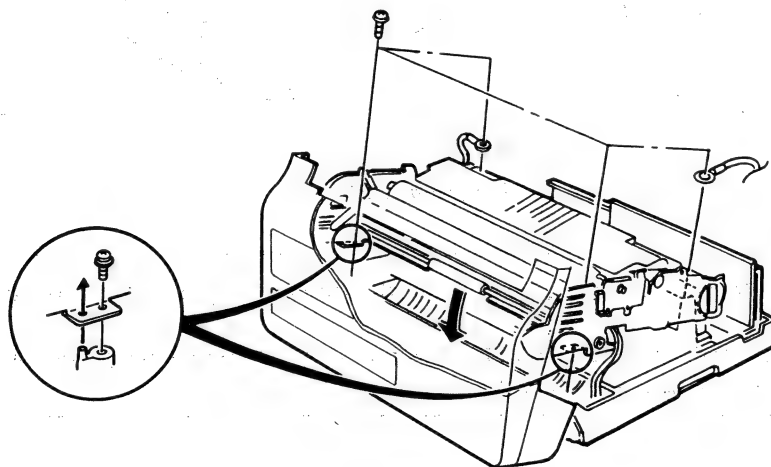


Figure 4.3.24

Note:

- (5) If the mechanical assy is lifted, the wiring to the speaker becomes easy to be disconnected. Therefore, unplugging it from the SC board on the bottom is recommended.

4.3.2.7 Transmitting Eject Pinch Roller Assy (6)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (407) and take out the motor unit. (See Figure 4.3.29.)
- (4) Remove four screws (408) which secure the mechanical assy from the lower base assy (1), and lift the front end of it up.
- (5) Turn the recording paper guide plate (128) and the transmitting eject guide plate (2) towards you.
- (6) Remove the screw (410) and take out the transmitting eject pinch roller assy (6).
- (7) To reinstall, reverse the removal procedures.

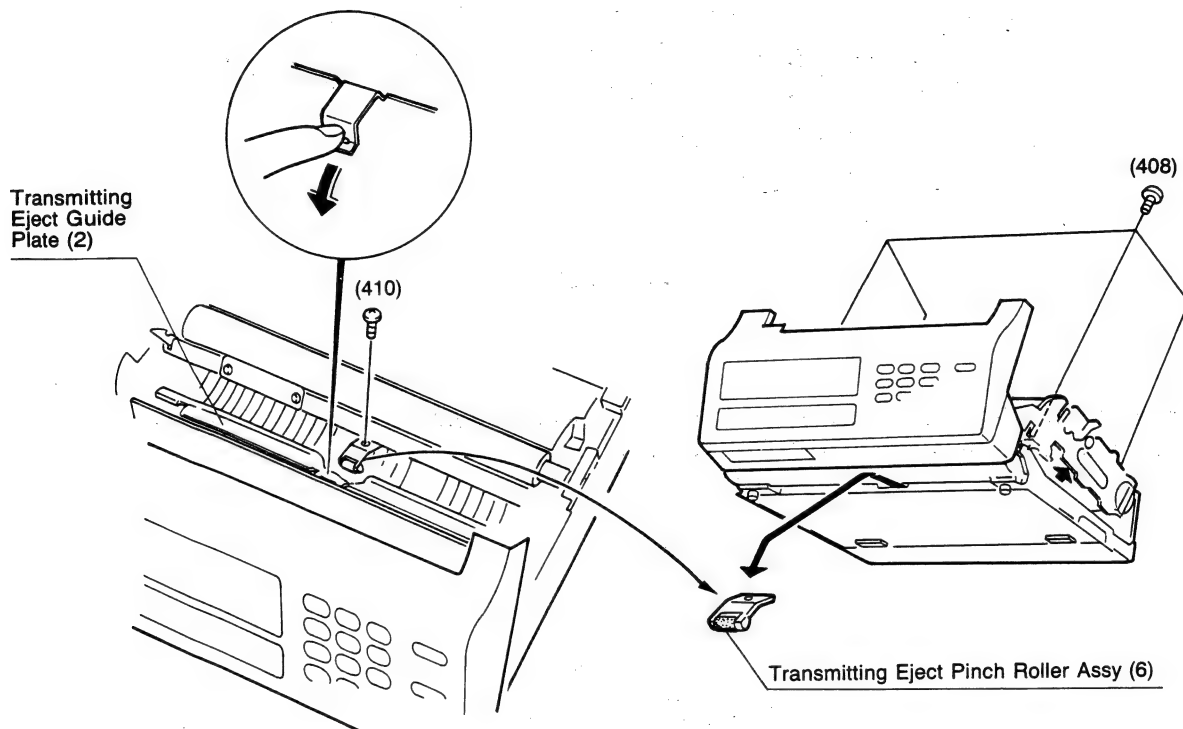


Figure 4.3.25

Note:

- (1) Be careful of the bending direction of the transmitting eject pinch roller unit when reinstalling on the lower base assy (1).

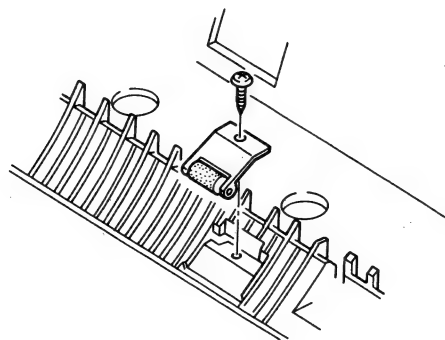


Figure 4.3.26

Note:

- (2) The mechanical assy is secured by four screws (408).

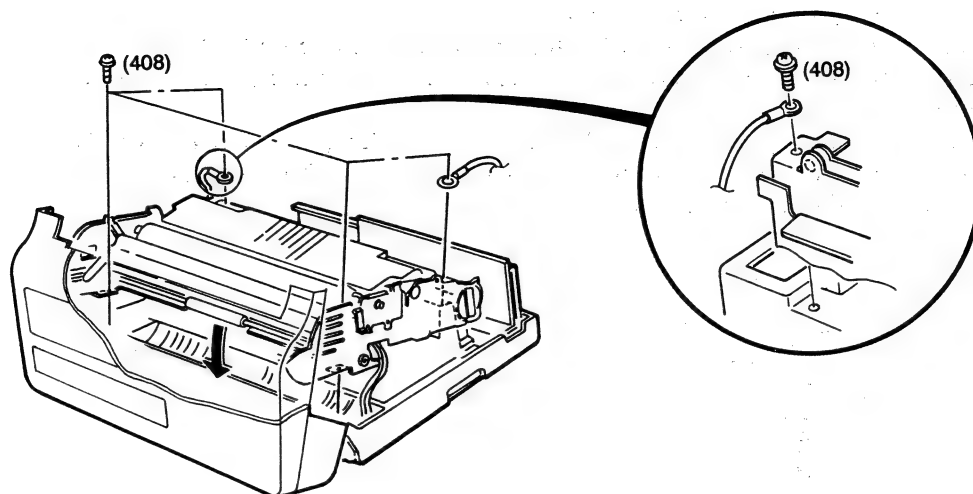


Figure 4.3.27

Note:

- (3) The holes of side plates (L) and (R) (100 and 101), located near the front two screws, must be fitted to the projection of the lower base assy (1).

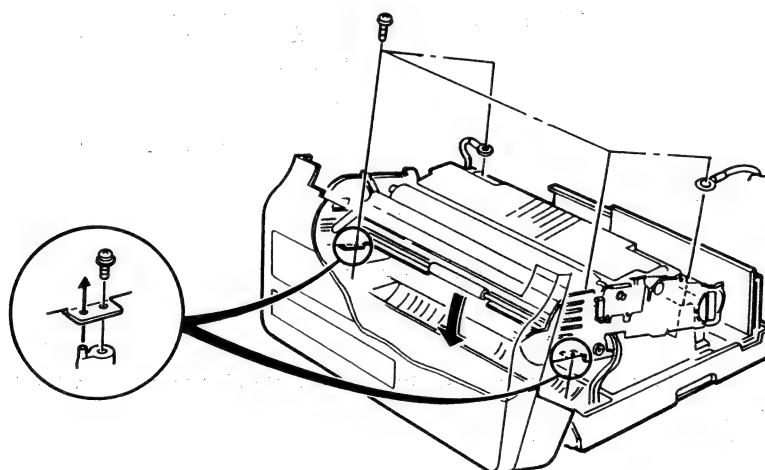


Figure 4.3.28

Note:

- (4) If the mechanical assy is lifted, the wiring to the speaker becomes easy to be disconnected. Therefore, unplugging it from the SC board on the bottom is recommended.

4.3.2.8 Stepper Motor (for Transmitting) (M1)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (407) and take out the motor unit.
- (4) Remove the screw (411) and turn the stepper motor (M1) in the arrow direction to take it out.
- (5) To reinstall, reverse the removal procedures.

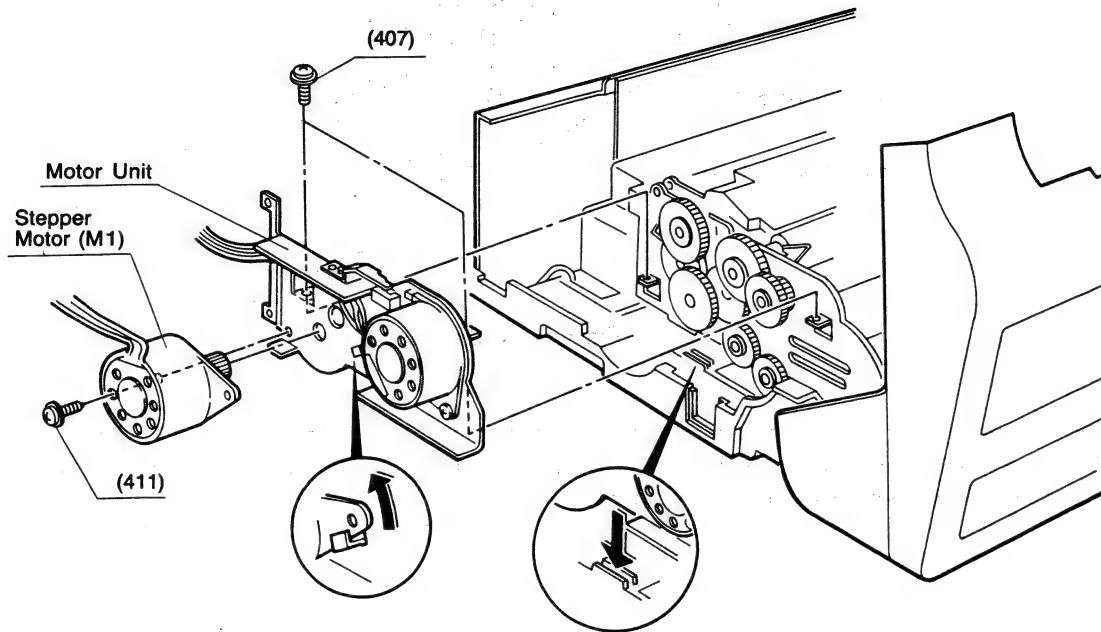


Figure 4.3.29

Note:

- (1) When replacing the motor, be sure that the fin of the stepper motor (M1) is fitted by its holder.

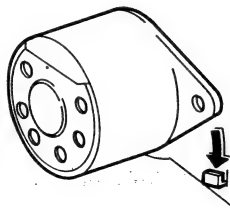


Figure 4.3.30

Note:

- (2) When replacing the motor unit, be sure that the motor set board fits to the groove on the lower base assy (1) and the harnesses should not be caught by the motor set board (150).

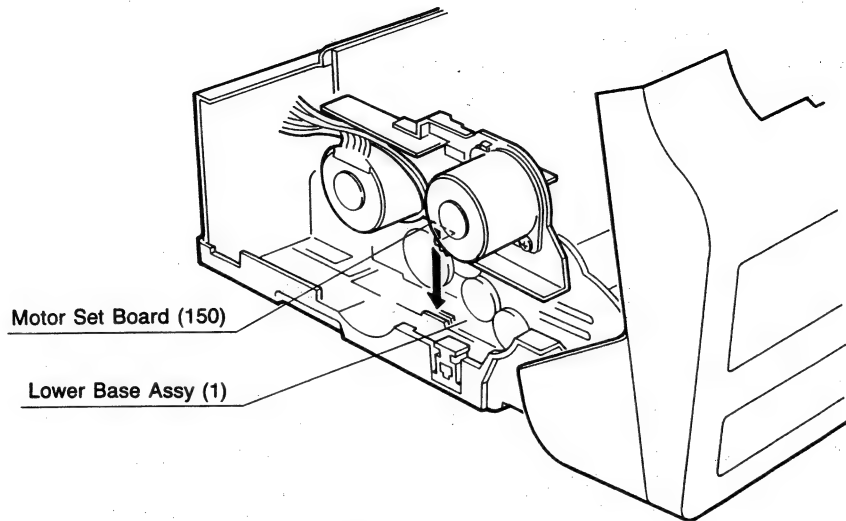


Figure 4.3.31

Note:

- (3) Pass the harnesses over the stepper motor (M1) and then through the semicircle notch located under the motor set board (150) in a bundle.

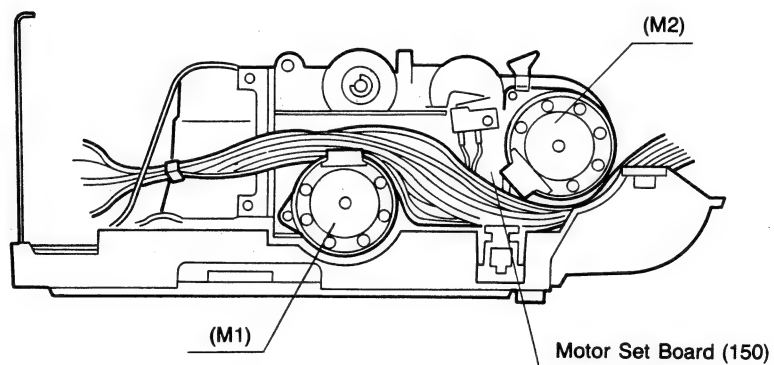


Figure 4.3.32

4.3.2.9 Gears (for Transmitting)

- 1 ADF Gear (123)
- 2 Feed Gear (124)
- 3 Transmitting Eject Gear (125)
- 4 Transmitting Eject Idler Gear (126)
- 5 ADF Idler Gear (151)
- 6 Motor Idler Gear (153)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (407) and take out the motor unit. (See Figure 4.3.29.)
- (4) Remove the E-Ring (413) and take out the ADF gear (123).

Note:

All gears other than the ADF gear (123) are freely removed. Only the ADF gear (123) is retained by the E-Ring (413).

- (5) Remove the motor idler gear (153), the ADF idler gear (151), and feed gear (124) after removing E-Ring (413).
- (6) Remove four screws (408) which secure the mechanical assy from the lower base assy (1), and lift the front end of it up.
- (7) Remove the transmitting eject idler gear (126), and transmitting eject gear (125).
- (8) To reinstall, reverse the removal procedures.

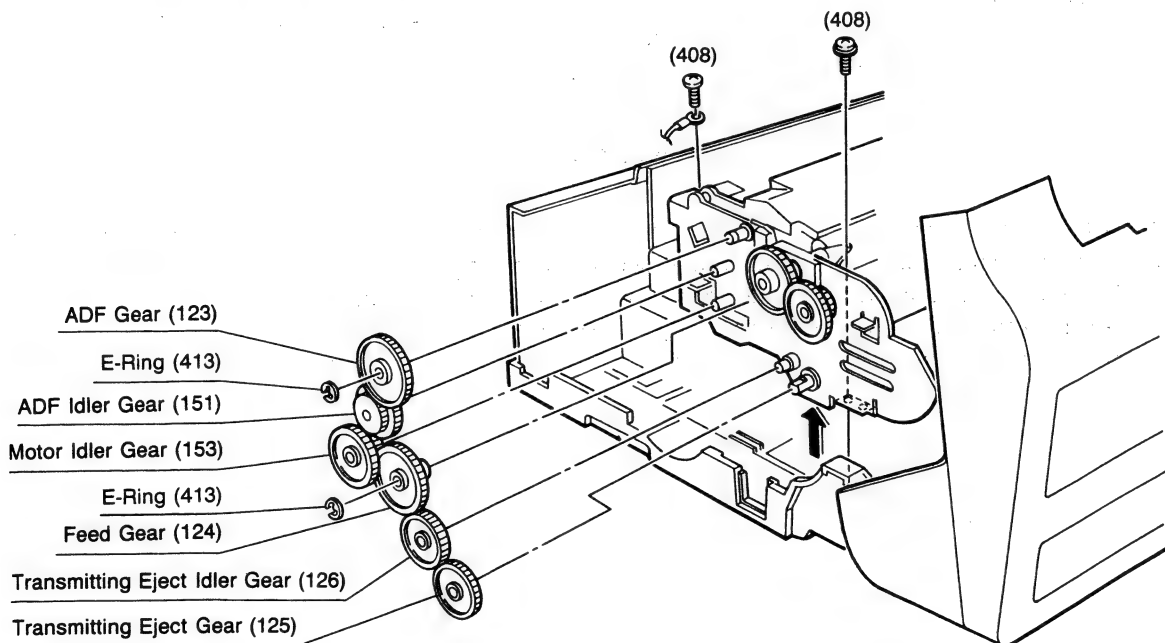


Figure 4.3.33

Note:

The feed gear (124) of the transmitting system is the same one as that of the receiving system. Gears must be assembled correctly since they have unique installing order and direction.

4.3.2.10 Thermal Recording Head (HD1)

Replacement

- (1) Open the receiving unit.
- (2) Remove the receiving unit. (See Figure 4.3.4.)
- (3) Remove two screws (411), and remove the head plate spring (148).
- (4) Lifting the lower end of the thermal recording head unit, draw it downwards. If detached, unplug the two connectors CNP7 and CNP8.
- (5) Remove two screws (407) (one of them is earth connected), and remove the head set board (149) from the thermal recording head (HD1).
- (6) To reinstall, reverse the removal procedures.

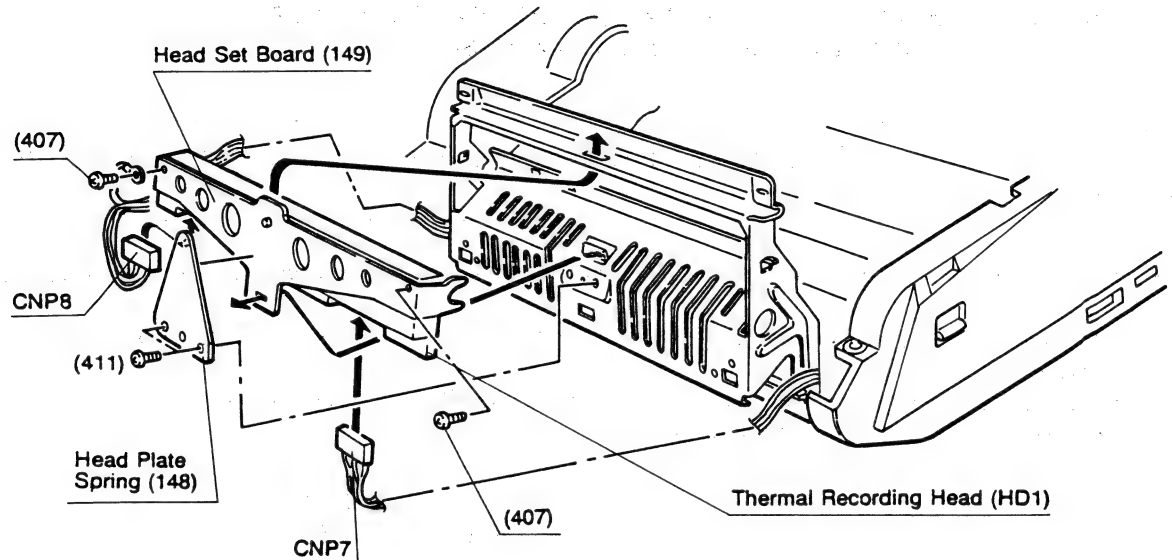


Figure 4.3.34

Notes:

- (1) Plug the connectors 7 and 8 securely, when reinstalling.
- (2) The harnesses should be bound in their guides in a determined way.
- (3) Reinstall the receiving unit by referring to paragraph 4.3.1.2.

4.3.2.11 Head Roller (135)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Open the ADF unit.
- (4) Remove two stopper screws (180, 181), and remove the roller unit. (See paragraph 4.3.2.5.)
- (5) Remove the feed gear (124) and the head roller pillow (R) (119).
- (6) Remove two E-Rings (413) and then take out the head roller (135) from this roller unit.
- (7) To reinstall, reverse the removal procedures.

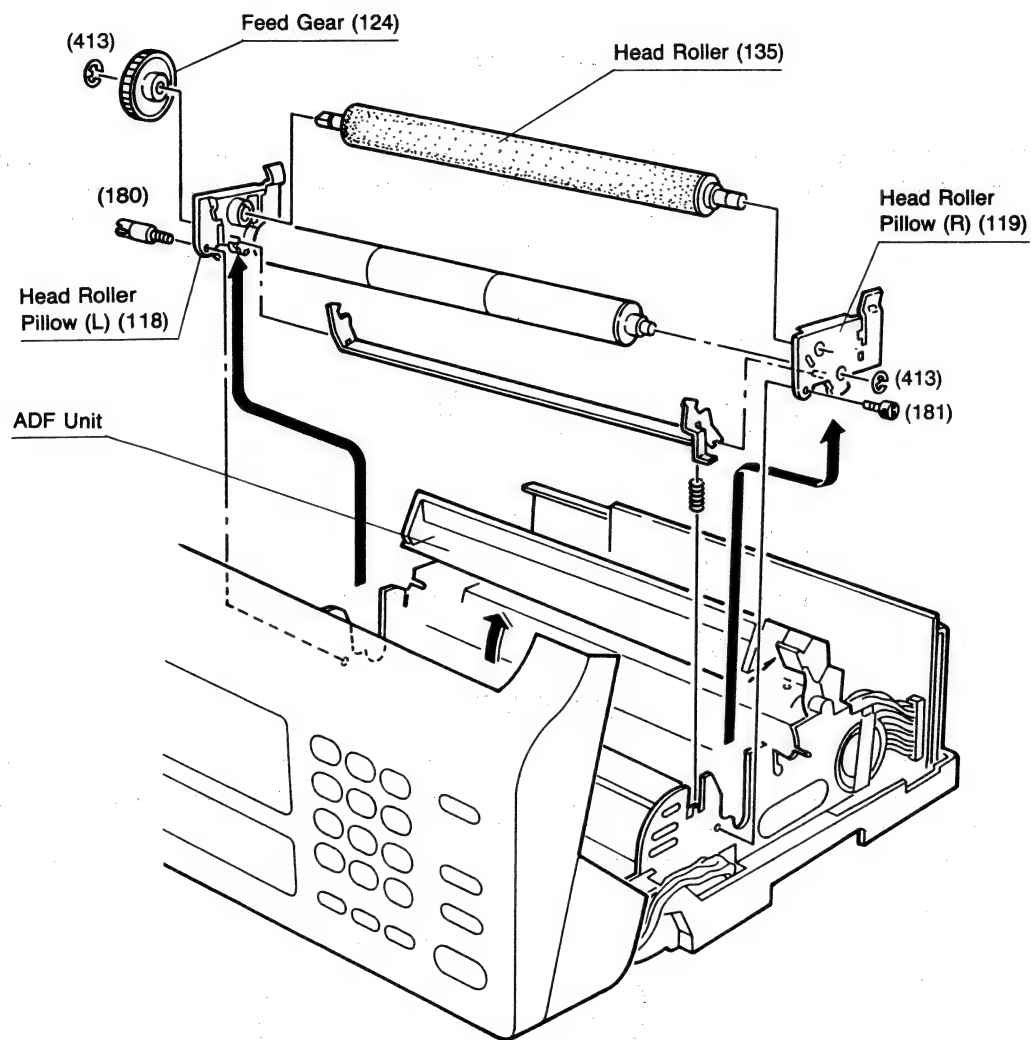


Figure 4.3.35

Note:

- (1) When lifting and removing the roller unit from the main body, the latch spring (130) on the side plate (R) (101) is easy to miss. Therefore, care must be taken for this matter.

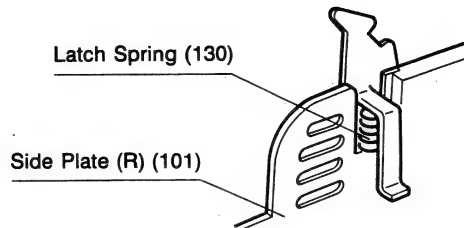


Figure 4.3.36

Note:

- (2) The same type of feed gear (124) is used in the head roller (135) and the transmitting feed roller (113). They should be installed in the reversed direction in the shaft of the each roller.

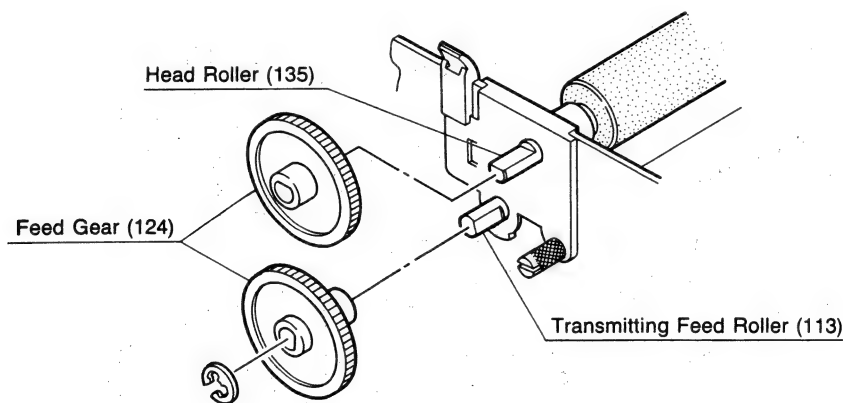


Figure 4.3.37

Note:

- (3) Be careful of installing method (direction and opposite component) when reinstalling the head roller pillows (118 and 119) to the side plates (R) (101) and (L) (100).

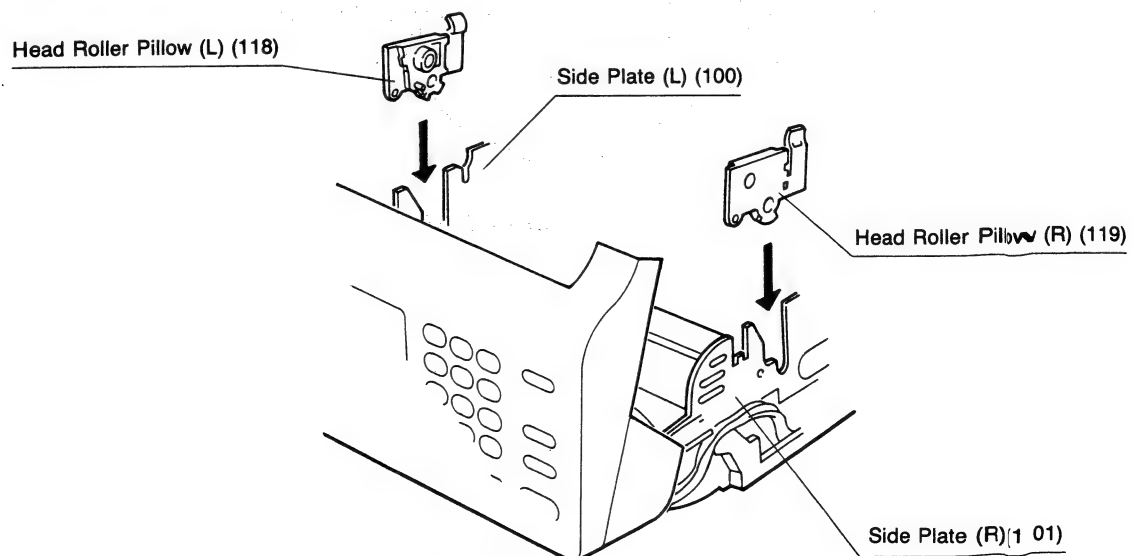


Figure 4.3.38

Cleaning

Wipe the head roller (black roller) gently with a soft clean cloth soaked with ethyl alcohol, while rotating the roller with both hands.

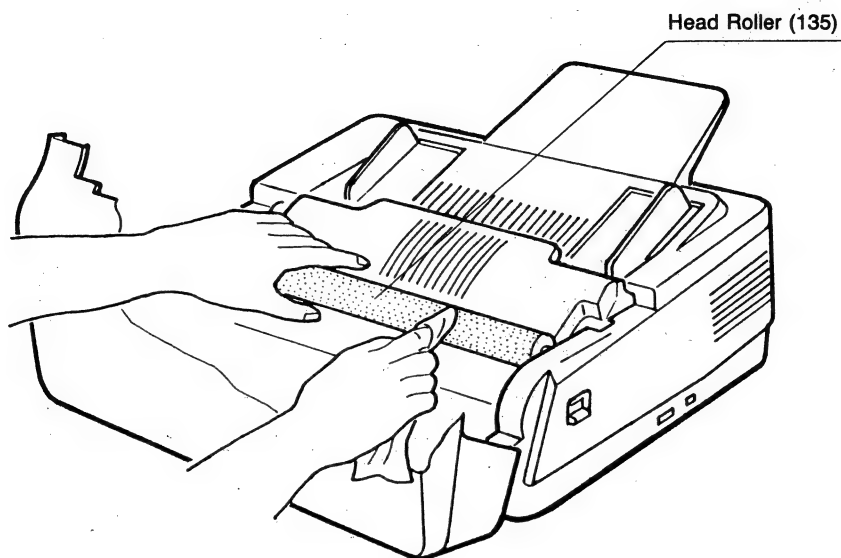


Figure 4.3.39

4.3.2.12 PSA Sensor (A5)

Replacement

- (1) Open the receiving unit.
- (2) Turn the recording paper guide plate (128) towards you.
- (3) Remove two rivets (418) and unsolder wiring to remove the PSA sensor (A5).
- (4) To reinstall, reverse the removal procedures.

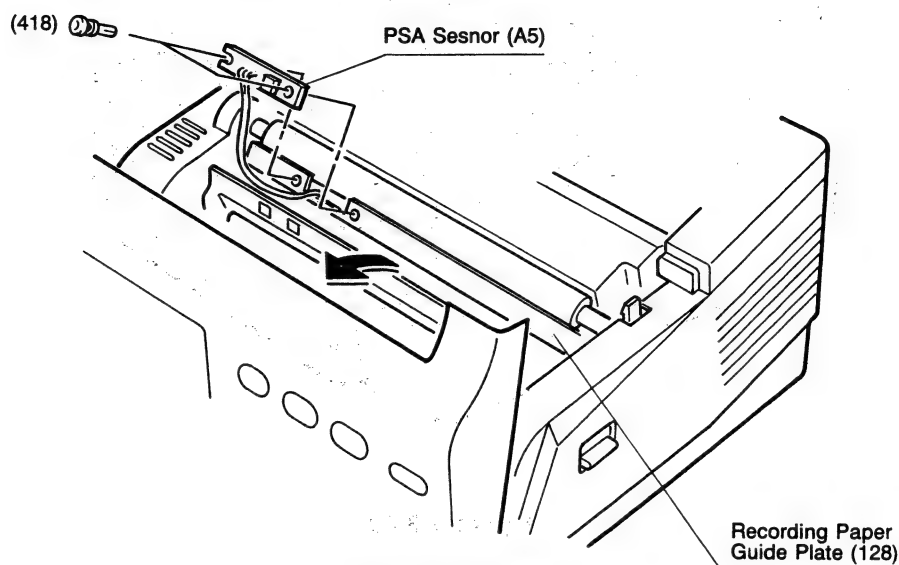


Figure 4.3.40

Note:

Reinstall the PSA sensor in the direction that characters inscribed on the board look straight. Be careful of the direction of the board when soldering, since it can be mounted even in the reversed direction.

Cleaning

- (1) Open the receiving unit.
- (2) Turn the recording paper guide plate (128) towards you.
- (3) If dust or other foreign matter is found adhered, wipe it off with a clean cloth.

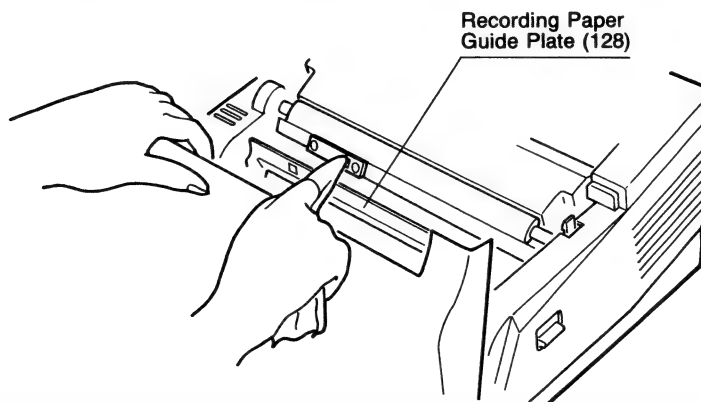


Figure 4.3.41

4.3.2.13 Stepper Motor (for Receiving) (M2)

Replacement

- (1) Open the receiving unit.
- (2) Remove covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (407) and take out the motor unit.
- (4) Remove the screw (411) and turn the stepper motor (M2) to take it out.
- (5) To reinstall, reverse the removal procedures.

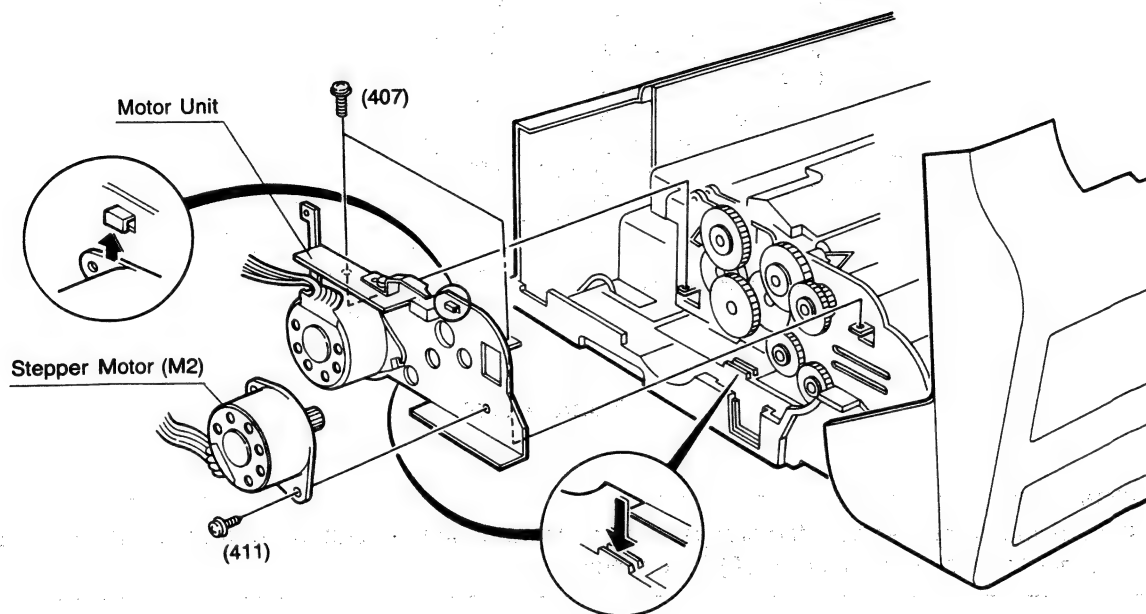


Figure 4.3.42

Note:

- (1) When replacing the motor, be sure that the fin of the stepper motor (M2) is fitted by its holder.

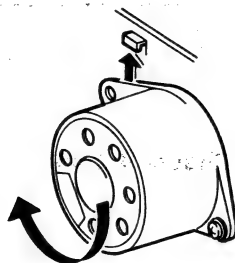


Figure 4.3.43

Note:

- (2) When replacing the motor unit, be sure that the motor set board fits to the groove on the lower base assy (1) and the harnesses should not be caught by the motor set board (15).

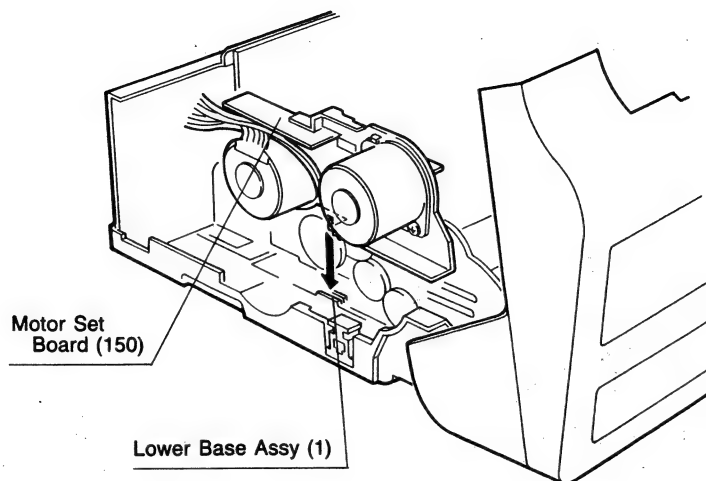


Figure 4.3.44

Note:

- (3) Pass the harnesses over the stepper motor (M1) and then through the semicircular notch located under the motor set board (150) in a bundle.

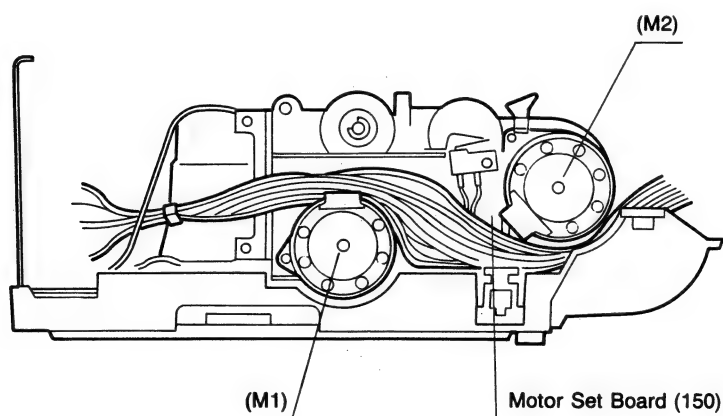


Figure 4.3.45

4.3.2.14 Gears (for Receiving)

- 1 Feed Gear (124)
- 2 Receiving Idler Gear (190)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (407) and take out the motor unit. (See Figure 4.3.42.)
- (4) Remove the receiving idler gear (190).
- (5) Remove the motor idler gear (153) (for transmitting).
- (6) Remove the E-Ring (413) and then take out the feed gear (124) (for transmitting).
- (7) Take out the feed gear (124) (for receiving).
- (8) To reinstall, reverse the removal procedures.

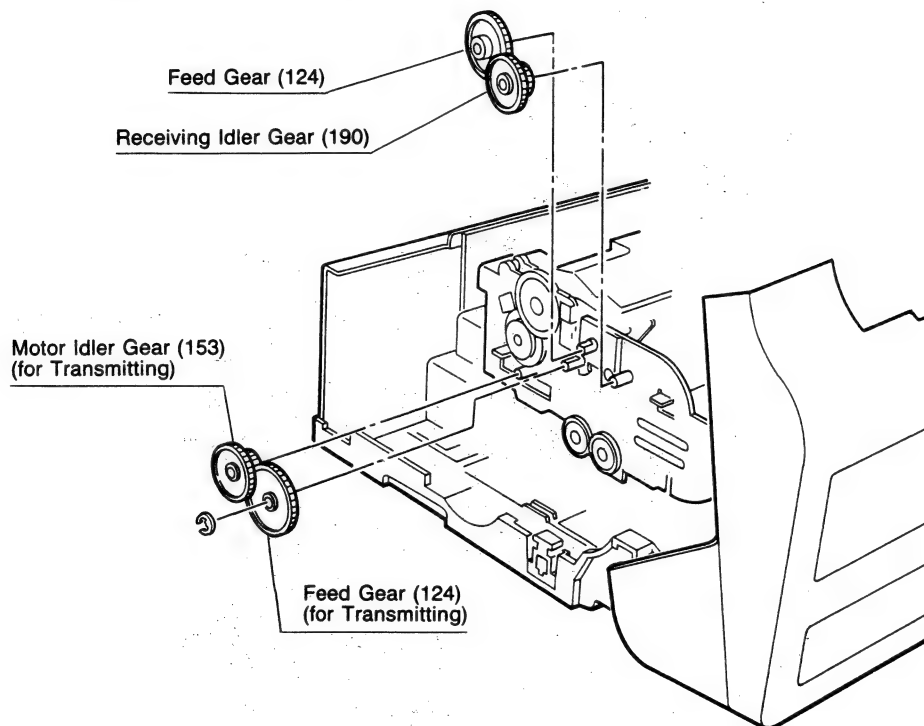


Figure 4.3.46

Note:

The feed gear (124) of the transmitting system is the same one as that of the receiving system. Gears must be assembled correctly since they have unique installing order and direction.

4.3.3 Electrical Parts

4.3.3.1 Power Supply Unit (POW1)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove two screws (408).
- (4) Remove the screw (417). (See Figure 4.3.51)
- (5) Unplug the connectors CNP2, CNP3 and CNP26; and disconnect the ground terminal.
- (6) Remove the power supply unit (POW1).
- (7) To reinstall, reverse the removal procedures.

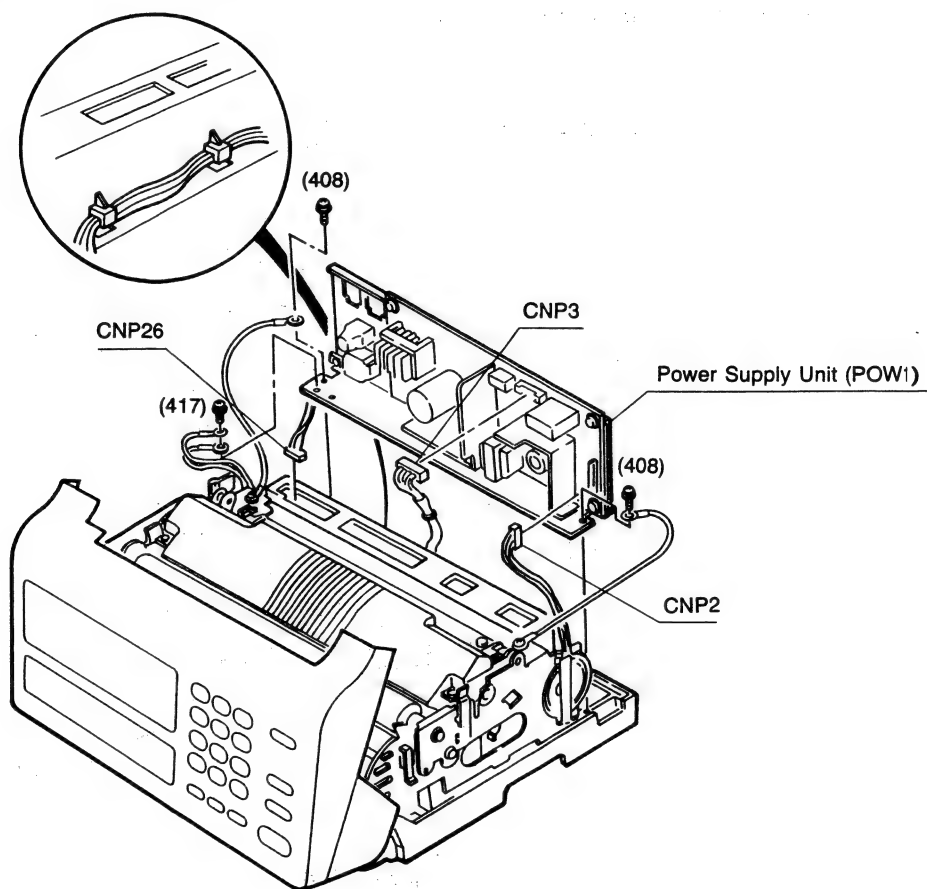


Figure 4.3.47

Note:

Set the harnesses in their harness guides when reinstalling the power supply unit.

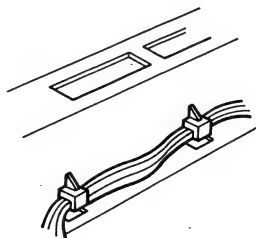


Figure 4.3.48

4.3.3.2 Speaker (SP1)

Replacement

- (1) Open the receiving unit.
- (2) Remove the covers. (See paragraph 4.3.1.1.)
- (3) Remove the speaker set plate (160), and unplug the connector CNP18 from the SC board on the bottom.
- (4) Remove the speaker (SP1).
- (5) To reinstall, reverse the removal procedures.

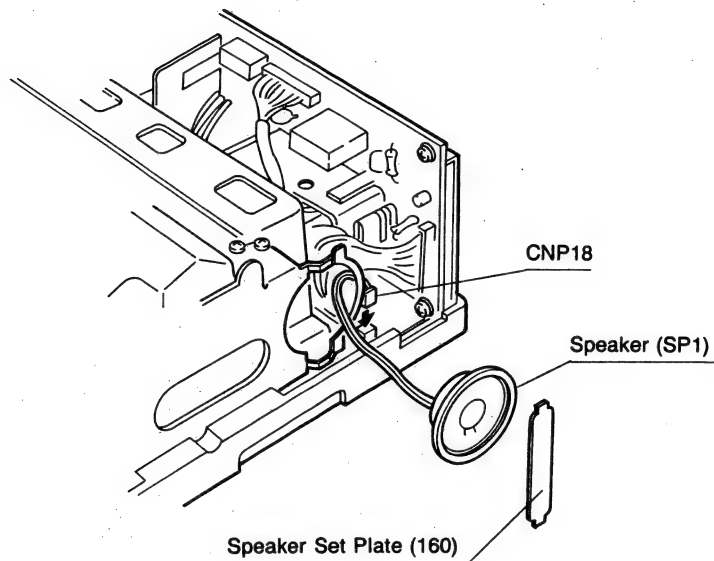


Figure 4.3.49

4.3.3.3 SC PC Board Assy (A2)

Replacement

- (1) Remove the sub tray (170) from the main body by sliding it upwards. (See Figure 4.3.1.)
- (2) Remove the Upper cover and then disconnect CNP26. (See Figure 4.3.51.)
- (3) Turn the machine over and remove the four screws (416) and the earth screw (421) to remove bottom plate (131).
- (4) Remove two plastic rivets (414); and then the two PC boards are disengaged.
- (5) Unplug the connectors CNP10, 11, 12, 13, 14, 15, 16, 18, 20, 21, and 22 from the SC PC board assy (A2).
- (6) Remove two plastic rivets (414) on the LCU PC board assy (A3) and unplug the connector CNP19 to separate the two PC boards.
- (7) To reinstall, reverse the removal procedures.

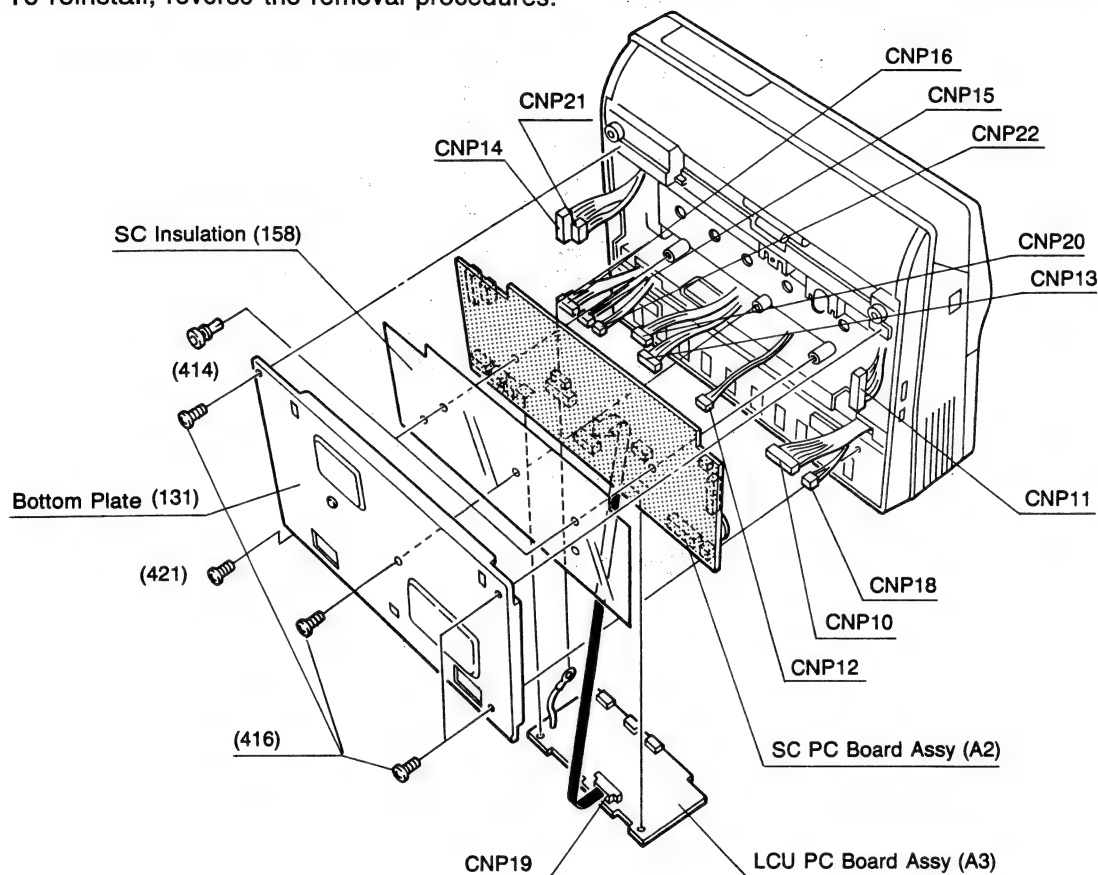


Figure 4.3.50

Note:

Plug each connector securely and reinstall the PC board assy into the main body correctly so as not to make improper contacts.

4.3.3.4 LCU PC Board Assy (A3)

Replacement

- (1) Remove the covers. (See paragraph 4.3.1.1.)
- (2) Unplug the connectors CNP26 (for Line), from the LCU PC board assy (A3).
(In some countries, also unplug CNP27 and CNP28.)
- (3) Remove the ground wire from the LCU PC board assy (A3).

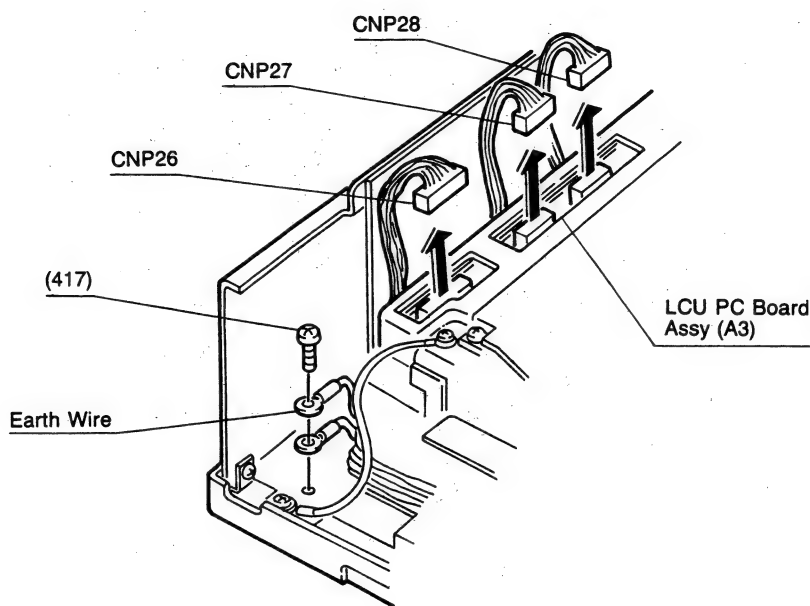


Figure 4.3.51

- (4) Turn the machine over and remove the four screws (416) and the ground screw (421) to remove bottom plate (131).
- (5) Remove two plastic rivets (414); and then the two PC boards are disengaged.
- (6) Unplug the connectors CNP10, 11, 12, 13, 14, 15, 16, 18, 20, 21, and 22 from the SC PC board assy (A2).
- (7) Remove two plastic rivets (414) on the LCU PC board assy (A3) and unplug the connector CNP19 to separate the two PC boards. Then, take out the LCU PC board assy (A3).
- (8) To reinstall, reverse the removal procedures.

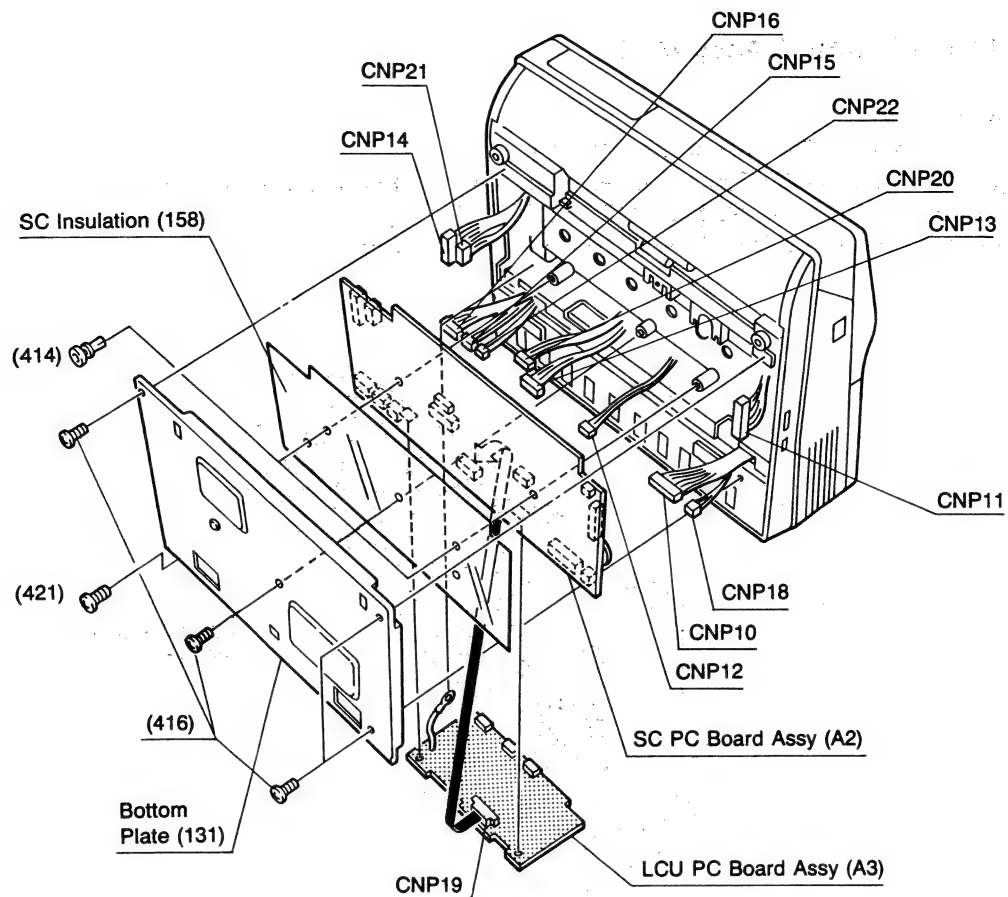


Figure 4.3.52

Note:

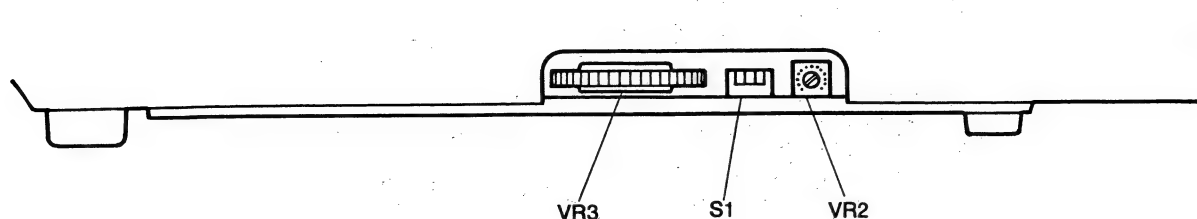
Plug each connector securely and reinstall the PC board assy correctly so as not to make improper contacts.

4.3.3.5 SC & LCU PC Boards Test Pin, Volume, Switch, Jumper and ROM

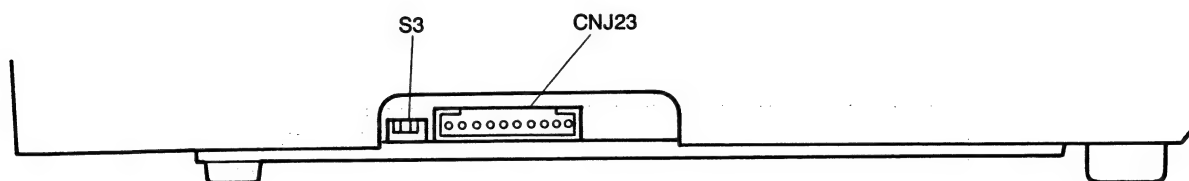
1) Test-Pin, Volume and Switch

i) Location

- Right side (The side cover is open.)



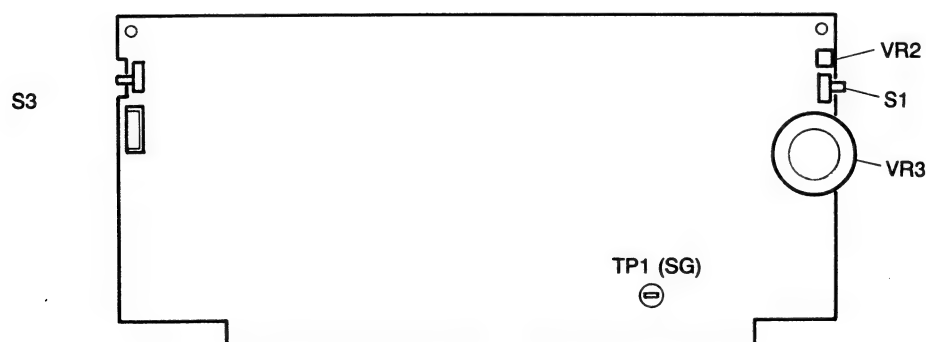
When the cover is closed the S1 and VR3 are visible and adjustable. The VR2 isn't adjustable, unless the cover is open.



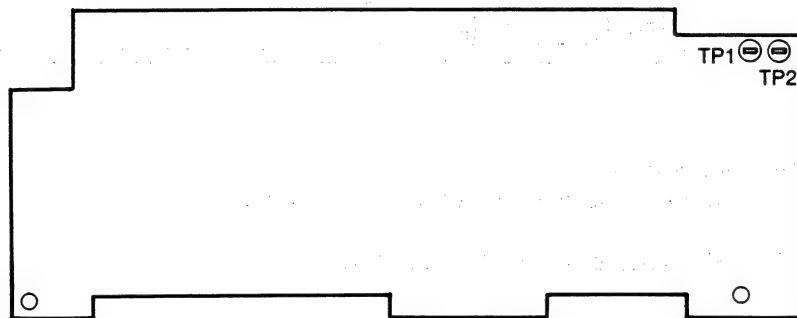
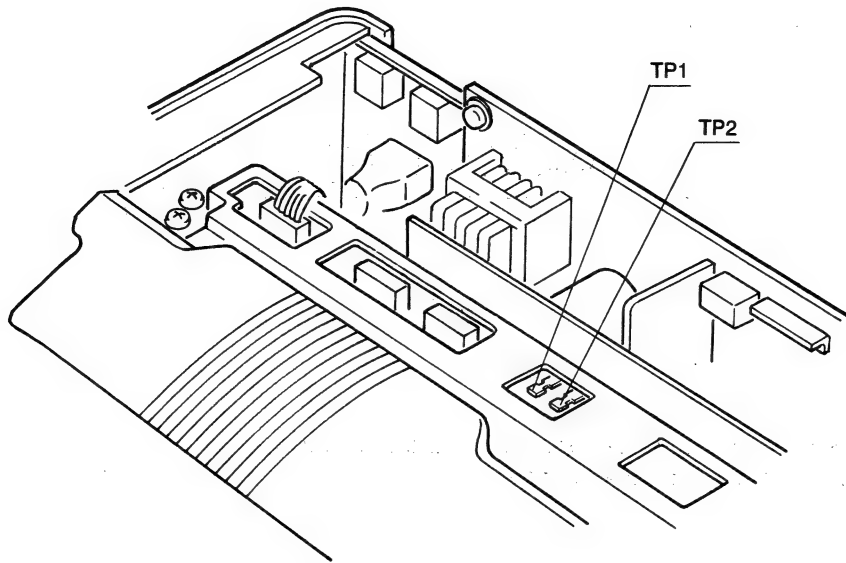
- Left side (The side cover is open.)

The S3 is neither visible nor adjustable unless the cover is open.

Location of each Test-Pin, volume and switch SC PCB



Location of Test-Pin on LCU PCB



ii) Description

PCB	Test-Pin	Description	Remarks
SC	TP1 (SG)	GND, System	
LCU	TP1	Output & Input Signal, Fax	Level will be changed by setting of attenuator or received signal level.
	TP2	GND, Analog	

PCB	Volume	Description	Remarks
SC	VR2	Fax signal output level	Adjusted at the factory. To adjust, see page 47.
	VR3	Monitor speaker volume	Adjustable by customer

Note:

VR2 is adjusted at the factory prior to shipment. Do not touch it unless otherwise required.

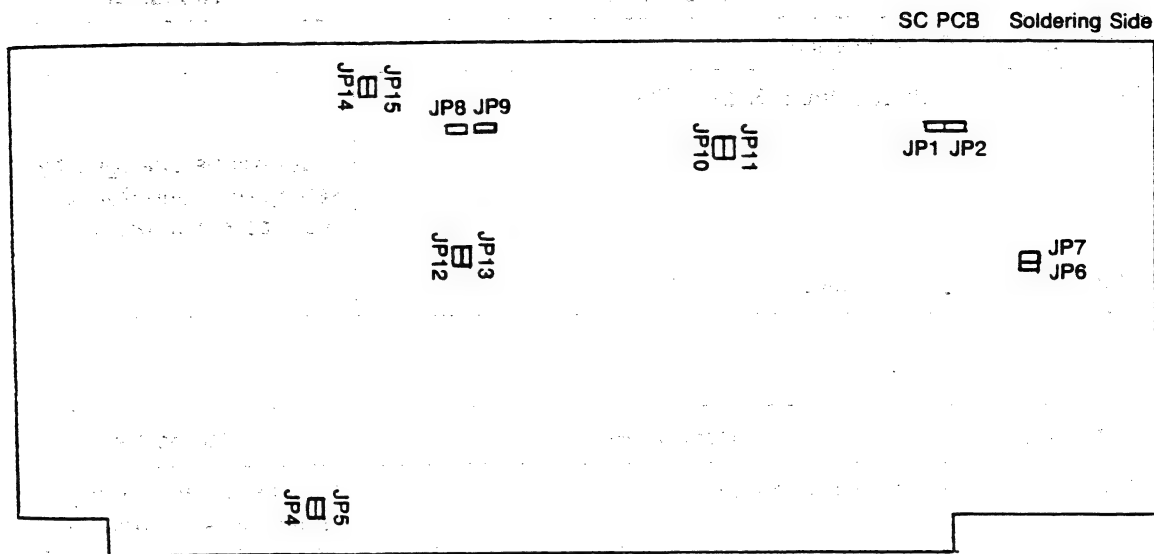
PCB	Switch	Description	Remarks
SC	S1	On/Off, Battery Back-up	Factory Setting: Off
	S3	Applicable to specific country	

Note:

S1 must be turned on when the unit installed.

2) Jumper

Jumper Location on SC PCB

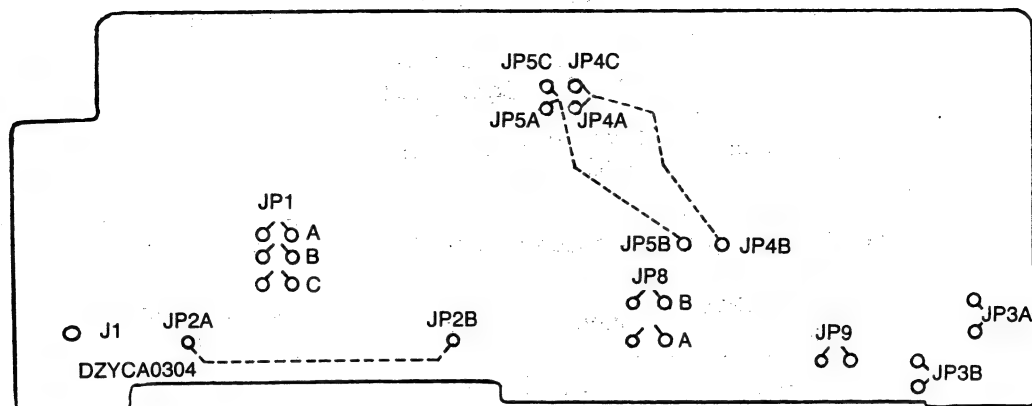


Jumper Description on SC PCB

PCB	Jumper	Description	Remarks									
SC	JP1, 2	Switch, +5 V power selection for analog circuits <table><tr><td>JP1 JP2</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>regulated by IC14</td></tr><tr><td>Open</td><td>+ 5 V for digital circuits</td><td>banned</td></tr></table>	JP1 JP2	Short	Open	Short	banned	regulated by IC14	Open	+ 5 V for digital circuits	banned	Fixed at Factory JP1: Open JP2: Short
	JP1 JP2	Short	Open									
	Short	banned	regulated by IC14									
Open	+ 5 V for digital circuits	banned										
JP3	Not Assigned	—										
JP4, 5	JP4, 5	Switch, S2 ROM capacity selection <table><tr><td>JP4 JP5</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>27C512 27C101</td></tr><tr><td>Open</td><td>27C256</td><td>banned</td></tr></table>	JP4 JP5	Short	Open	Short	banned	27C512 27C101	Open	27C256	banned	Fixed at Factory JP4: Open JP5: Short
	JP4 JP5	Short	Open									
	Short	banned	27C512 27C101									
Open	27C256	banned										
JP6, 7	JP6, 7	Switch, +5 V power selection for IC12 <table><tr><td>JP6 JP7</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>+ 5 V for digital circuits</td></tr><tr><td>Open</td><td>regulated by IC14</td><td>banned</td></tr></table>	JP6 JP7	Short	Open	Short	banned	+ 5 V for digital circuits	Open	regulated by IC14	banned	Fixed at Factory JP6: Short JP7: Open
	JP6 JP7	Short	Open									
	Short	banned	+ 5 V for digital circuits									
Open	regulated by IC14	banned										

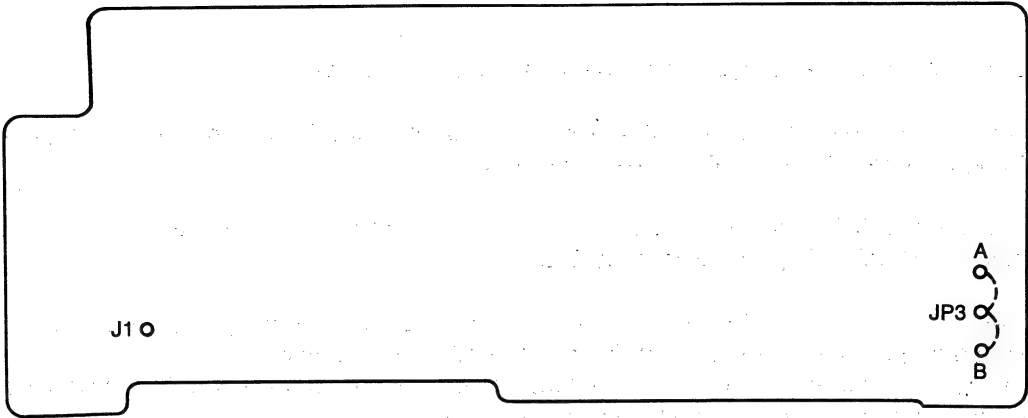
PCB	Jumper	Description	Remarks									
SC	JP8, 9	Switch, +5 V power selection for IC26	Fixed at Factory									
		<table><tr><td>JP8 \ JP9</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>+5 V for digital circuits</td></tr><tr><td>Open</td><td>regulated by IC14</td><td>banned</td></tr></table>	JP8 \ JP9	Short	Open	Short	banned	+5 V for digital circuits	Open	regulated by IC14	banned	JP8: Open JP9: Short
		JP8 \ JP9	Short	Open								
		Short	banned	+5 V for digital circuits								
	Open	regulated by IC14	banned									
JP10, 11	Switch, +5 V power selection for OSC2	Fixed at Factory										
<table><tr><td>JP10 \ JP11</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>+5 V for digital circuits</td></tr><tr><td>Open</td><td>regulated by IC14</td><td>banned</td></tr></table>	JP10 \ JP11	Short	Open	Short	banned	+5 V for digital circuits	Open	regulated by IC14	banned	JP10: Open JP11: Short		
JP10 \ JP11	Short	Open										
Short	banned	+5 V for digital circuits										
Open	regulated by IC14	banned										
JP12, 13	JP12, 13	Switch, +5 V power selection for IC25	Fixed at Factory									
		<table><tr><td>JP12 \ JP13</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>+5 V for digital circuits</td></tr><tr><td>Open</td><td>regulated by IC14</td><td>banned</td></tr></table>	JP12 \ JP13	Short	Open	Short	banned	+5 V for digital circuits	Open	regulated by IC14	banned	JP12: Short JP13: Open
		JP12 \ JP13	Short	Open								
	Short	banned	+5 V for digital circuits									
Open	regulated by IC14	banned										
JP14, 15	Switch, +5 V power selection for IC32	Fixed at Factory										
<table><tr><td>JP14 \ JP15</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>+5 V for digital circuits</td></tr><tr><td>Open</td><td>regulated by IC14</td><td>banned</td></tr></table>	JP14 \ JP15	Short	Open	Short	banned	+5 V for digital circuits	Open	regulated by IC14	banned	JP14: Open JP15: Short		
JP14 \ JP15	Short	Open										
Short	banned	+5 V for digital circuits										
Open	regulated by IC14	banned										
JP16, 17	JP16, 17	Switch, power selection for LED Array in Image Sensor	Fixed at Factory									
		<table><tr><td>JP16 \ JP17</td><td>Short</td><td>Open</td></tr><tr><td>Short</td><td>banned</td><td>+12 V</td></tr><tr><td>Open</td><td>+24 V</td><td>banned</td></tr></table>	JP16 \ JP17	Short	Open	Short	banned	+12 V	Open	+24 V	banned	JP16: Short JP17: Open
		JP16 \ JP17	Short	Open								
Short	banned	+12 V										
Open	+24 V	banned										

Jumper Location on LCU PCB "DZYCA0304"



Jumper	Short	Description	Country	Remarks
JP1	A B C	Not Used Not Used Prevention of the bell tinkle effected by the dialing of other telephone Earth dialing	U.K. New Zealand West Germany, Switzerland Austria	Factory Setting
JP2	A — B B A	Connected with the frame } ground Connected with PCB ground	All nations	Factory Setting Factory Setting Factory Setting
JP4, 5	A — C B — C	Connection of A and A1 Detection of the hand set switch	All nations	Factory Setting
J1		Frame ground for the surge absorber	All nations (except Sweden, Holland, Finland & Switzerland)	Factory Setting
JP8	B A	Prevention of the bell tinkle effected by the dialing of other telephone Earth dialing	U.K. West Germany Austria	Factory Setting Factory Setting
JP9		Bypass of attenuator	All nations (except Switzerland)	Factory Setting

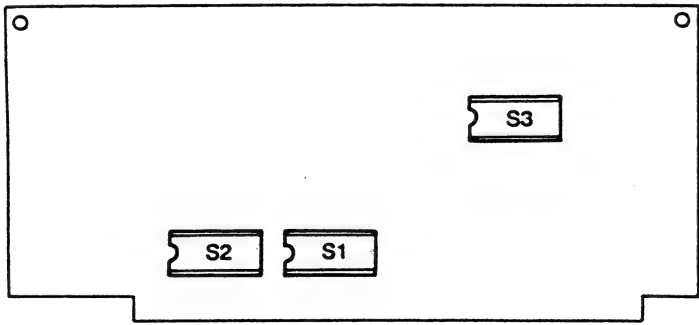
Jumper Location on LCU PCB “DZYCA0306”



Jumper	Short	Description	Remarks
J1		Frame ground for the surge absorber	Factory Setting
JP3	A	Connction of transformer shield and PCB ground	Factory Setting
	B	Connection of transformer shield and frame ground	

3) ROM
i) Location

SC PCB



S1, S2 : Control, System (Component side)
S3 : Control, Modem

4) How to Adjust Fax Signal Output Level

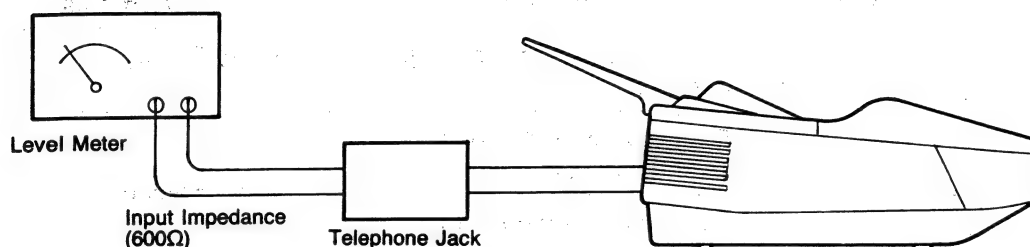
SC PCB

(1) VR2, Output Level, Fax Signal - Instrument Required: As shown below.

- ① Check if the attenuator of UF-140 is set to -10 dBm, using Test Mode No. 1, Parameter No. 20. If not, change it to -10 dBm. (See page 3-17)
- ② Transmit the 300 baud signal to the line, using Test Mode No. 5. Adjust the VR2 until the meter shows -10 dBm $^{+0}_{-0.5}$ dB. (See page 3-29)

Check the output signal levels of 2,100 Hz and 462 Hz generating signals (Refer to Table 3.3 Generating Signal Table on page 3-29) are -10 dBm or below.

If either one of these two frequency output signals is higher than -10 dBm, readjust VR2 so that the output signal level is slightly below -10 dBm.

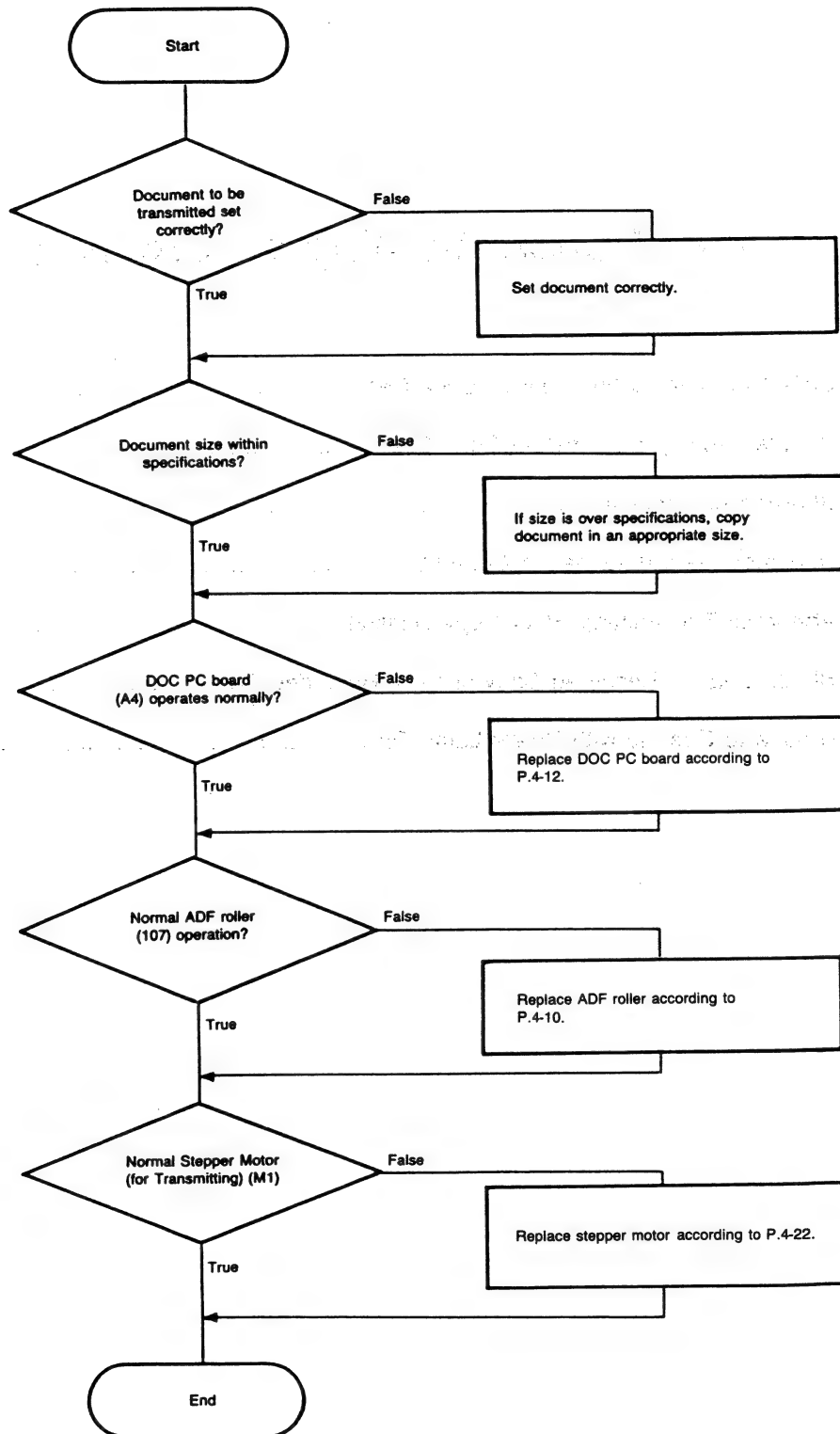


Note:
Signal level depends on the country.

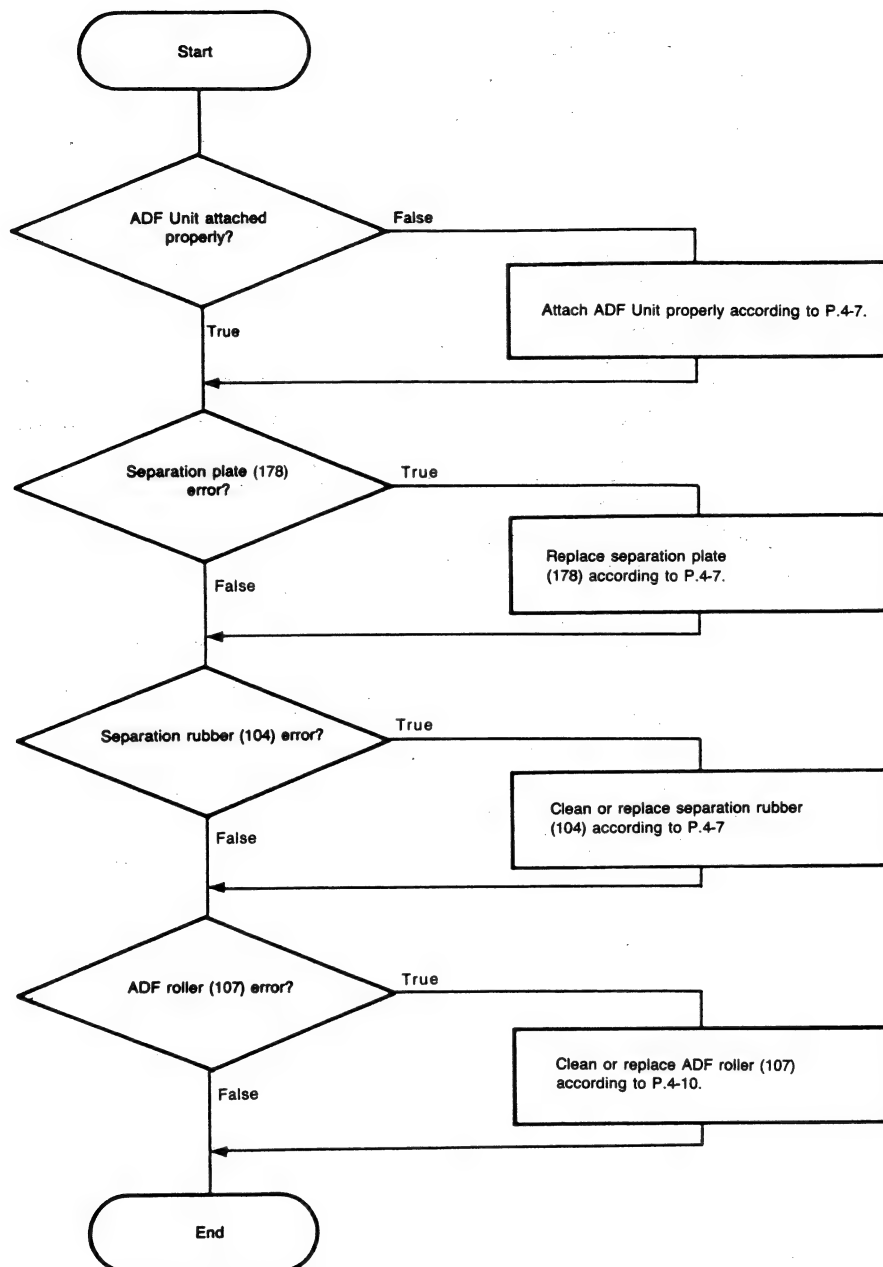
4.4 Troubleshooting of Mechanisms

4.4.1 Defective Feeding (Information Code 030)	4-47
4.4.2 Double Feeding (Information Code 031)	4-48
4.4.3 Skewing of Document	4-49
4.4.4 Document Jam (Information Code 031)	4-50
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4.4.7 Unable to Operate with Power Lamp On	4-53

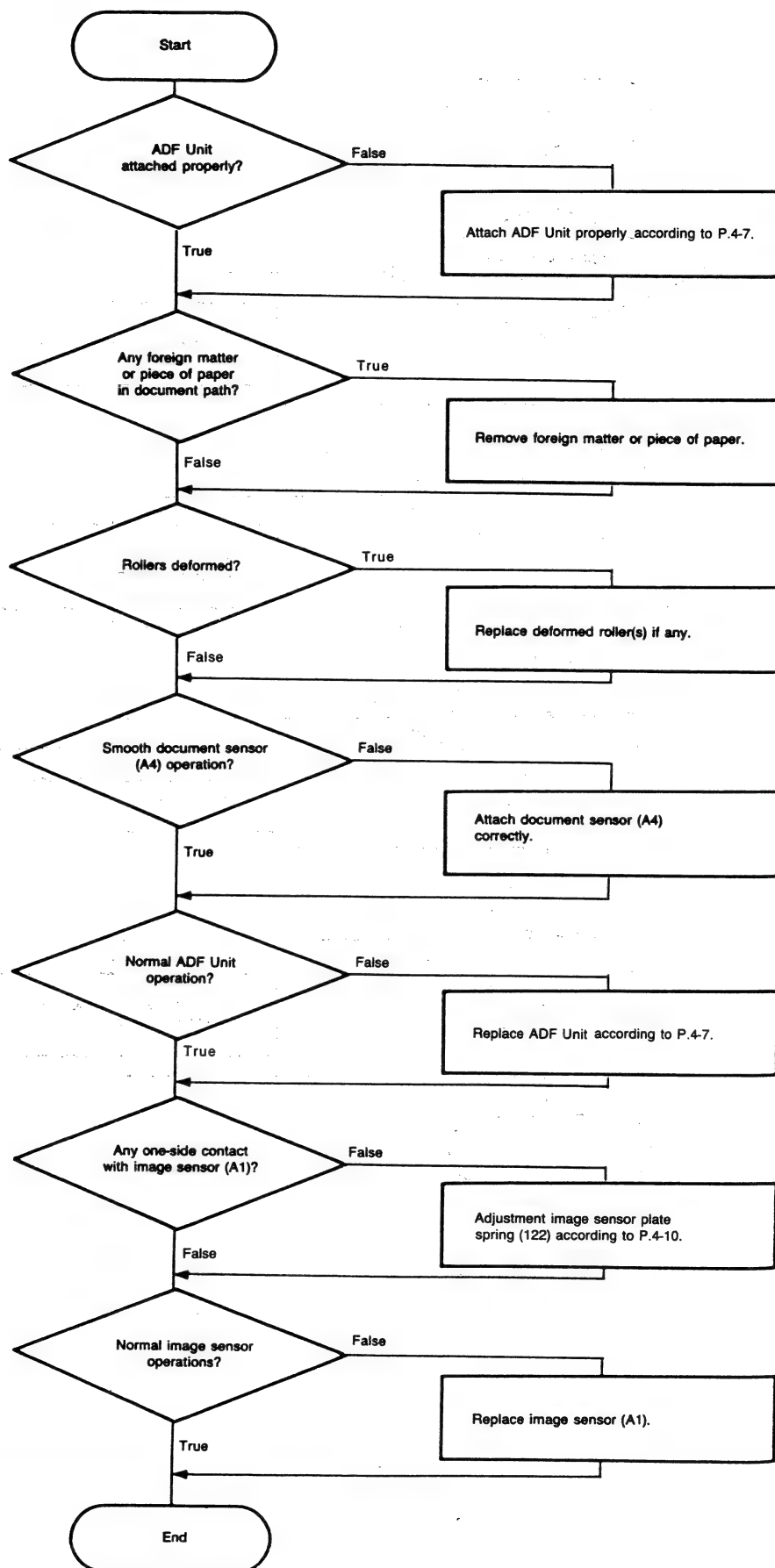
4.4.1 Defective Feeding (Information Code 030)



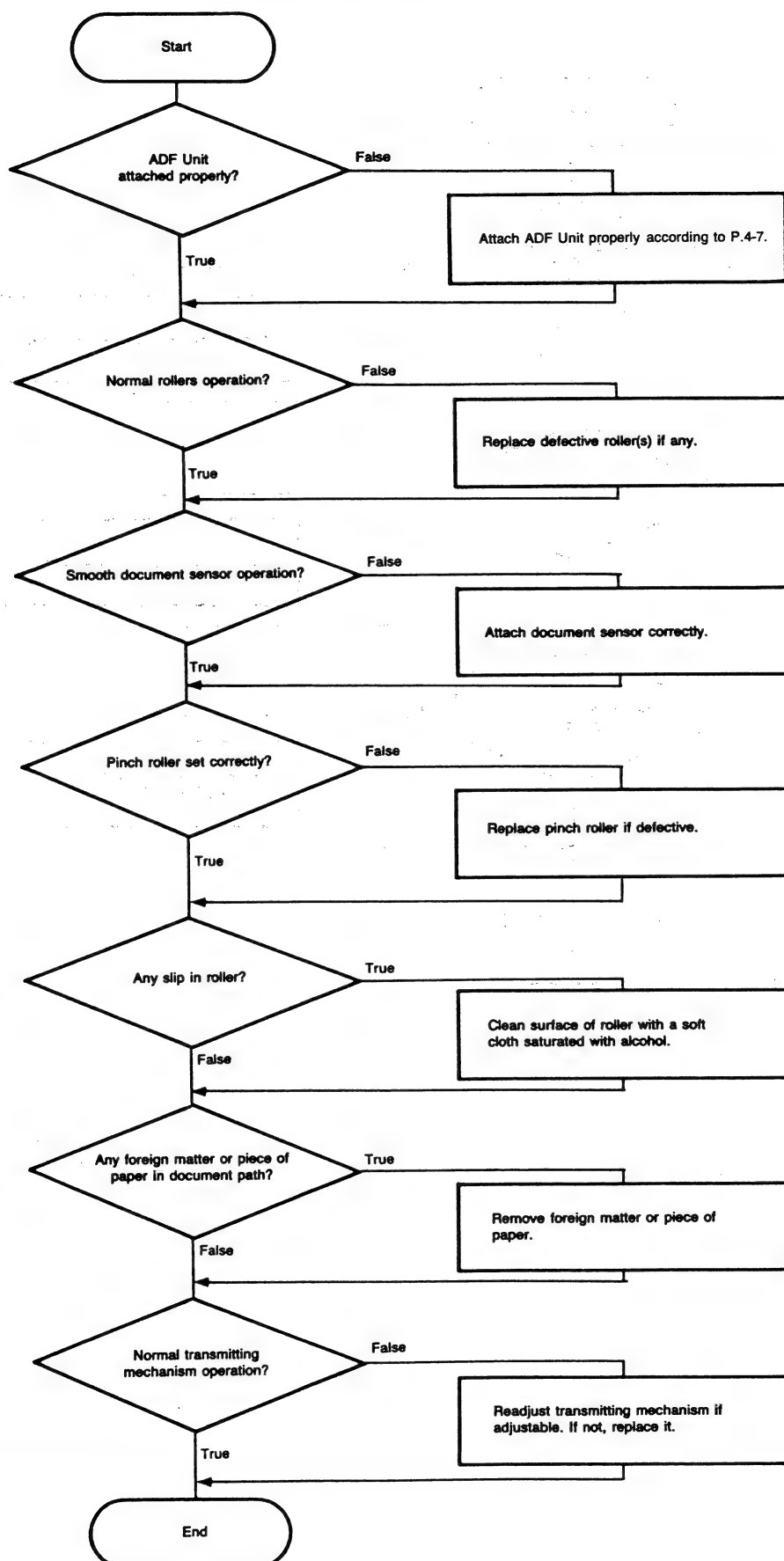
4.4.2 Double Feeding (Information code 031)



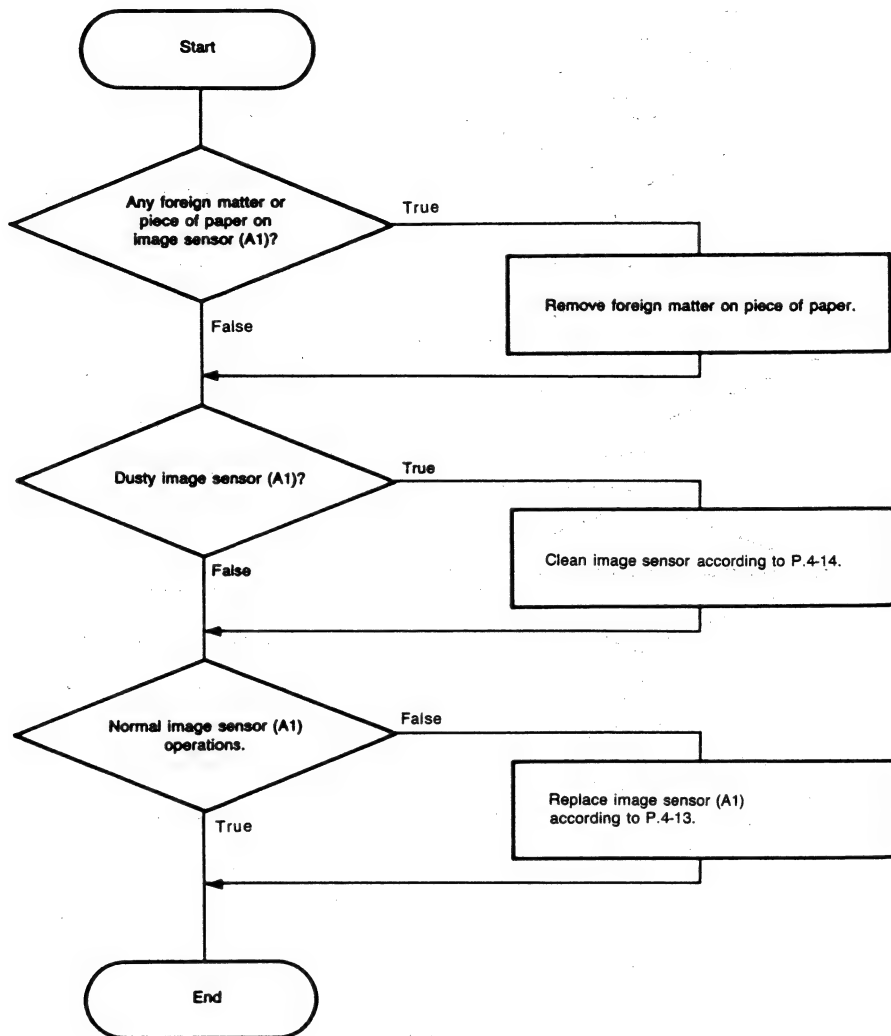
4.4.3 Skewing of Document



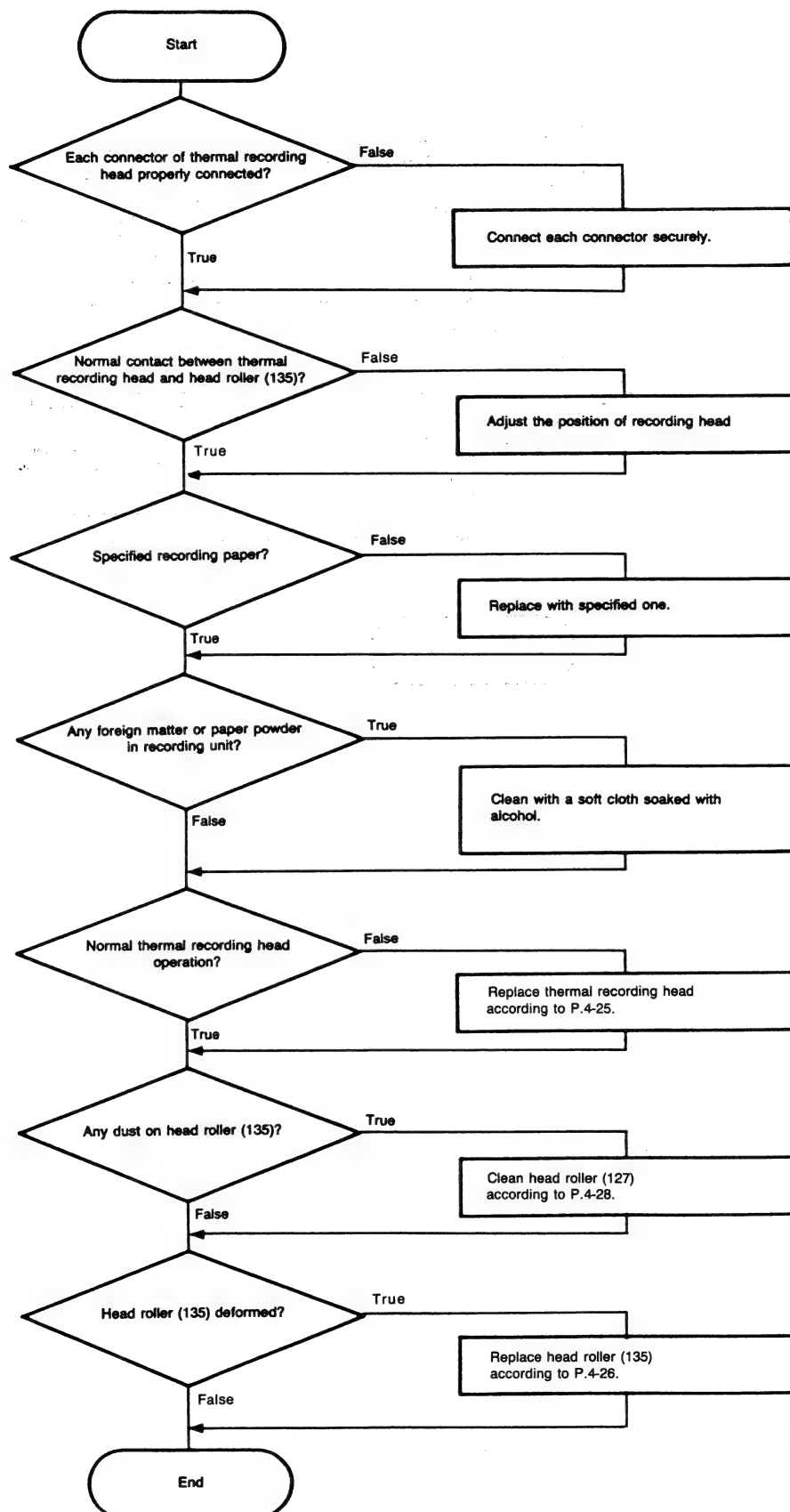
4.4.4 Document Jam (Information code 031)



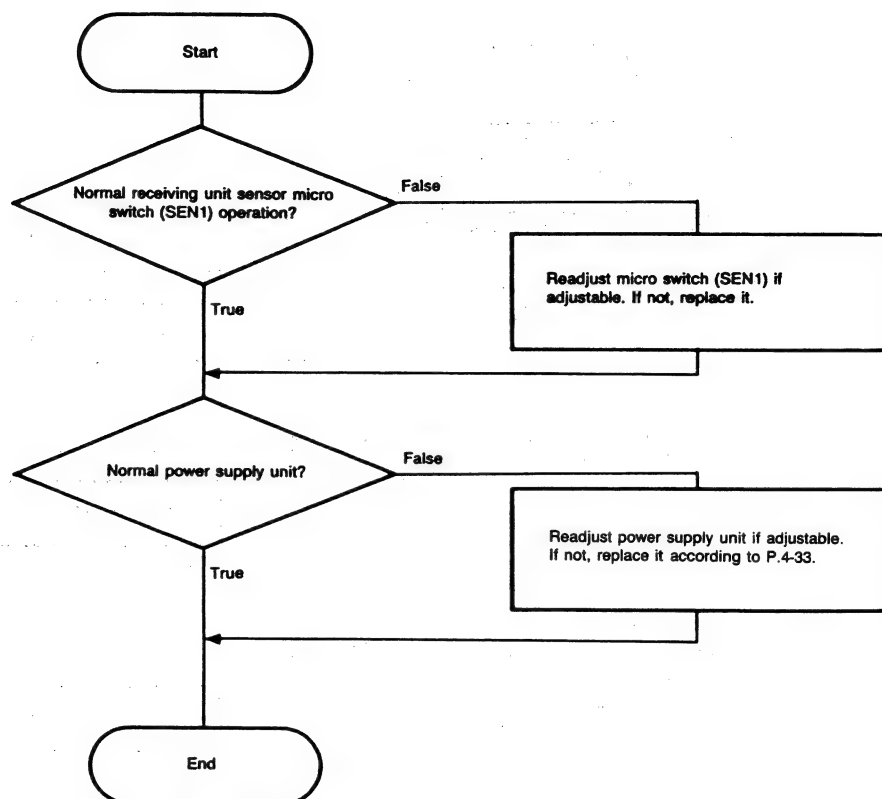
4.4.5 Abnormal Transmitting (Poor Copy Quality)



4.4.6 Blank Areas in Recorded Copy or Faint Recorded Copy



4.4.7 Unable to Operate with Power Lamp On

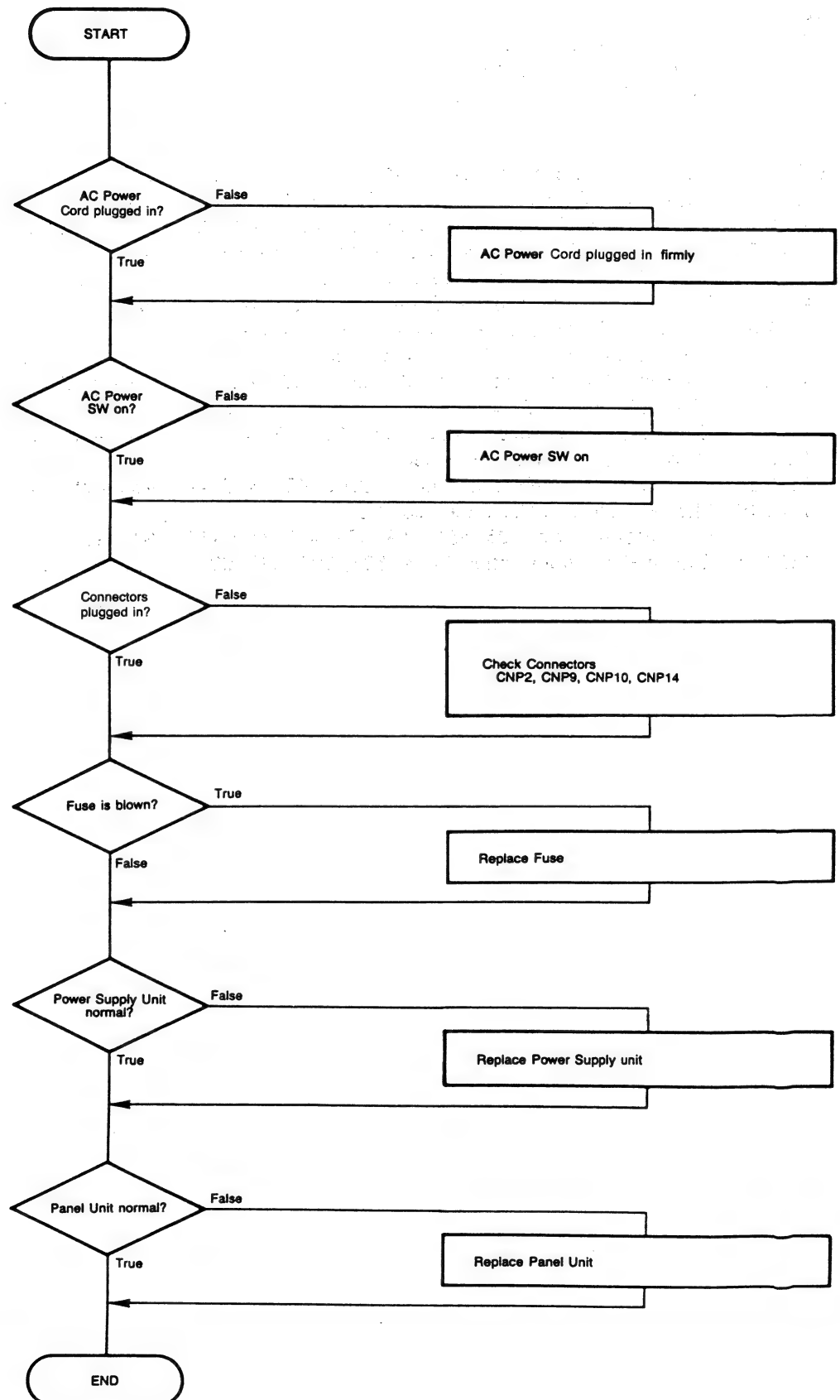


4.5 Troubleshooting of Electrical Block

4.5.1	Troubleshooting by Symptom	4-55
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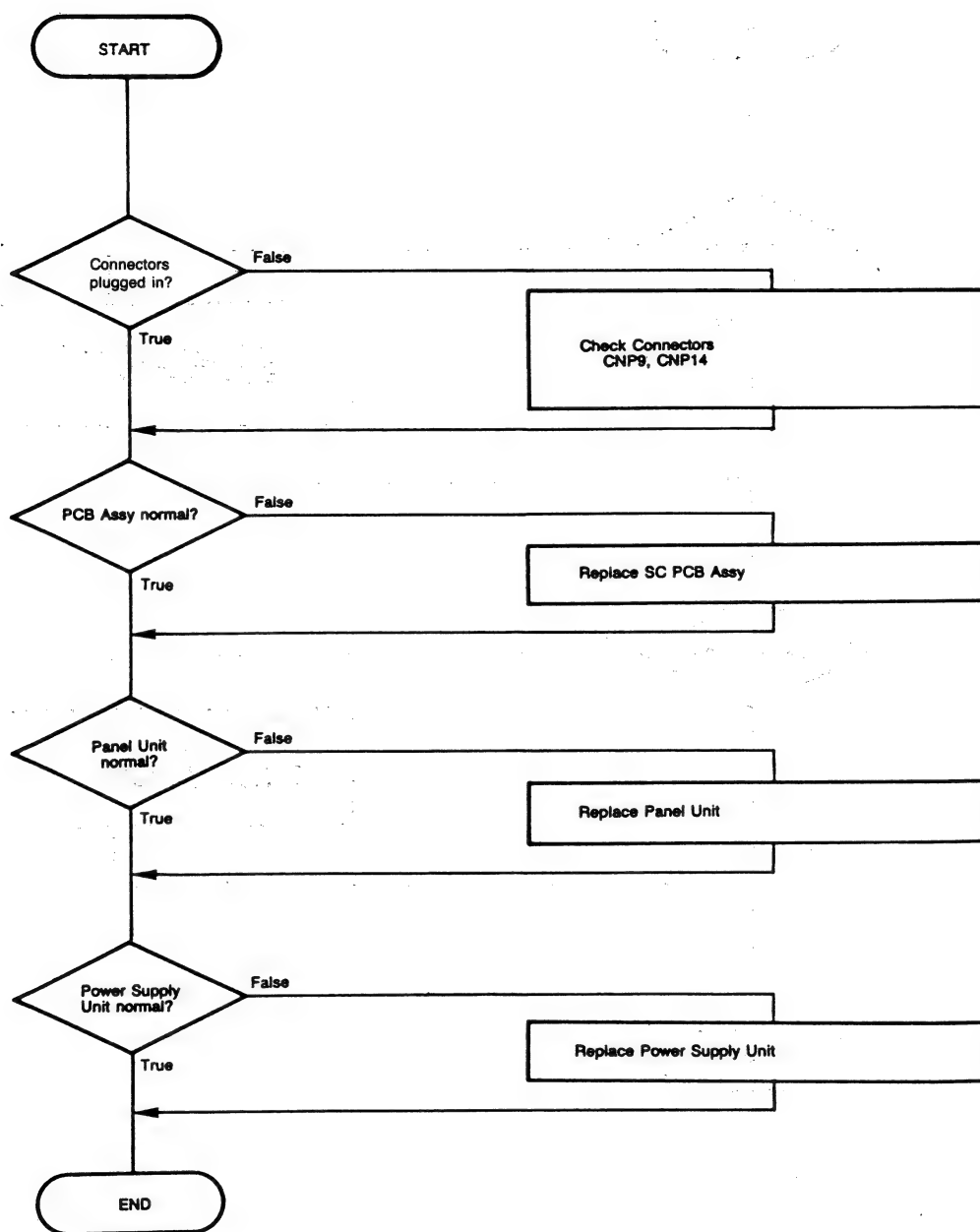
4.5.1 Troubleshooting by Symptom

4.5.1.1 Power LED is Not Lit.

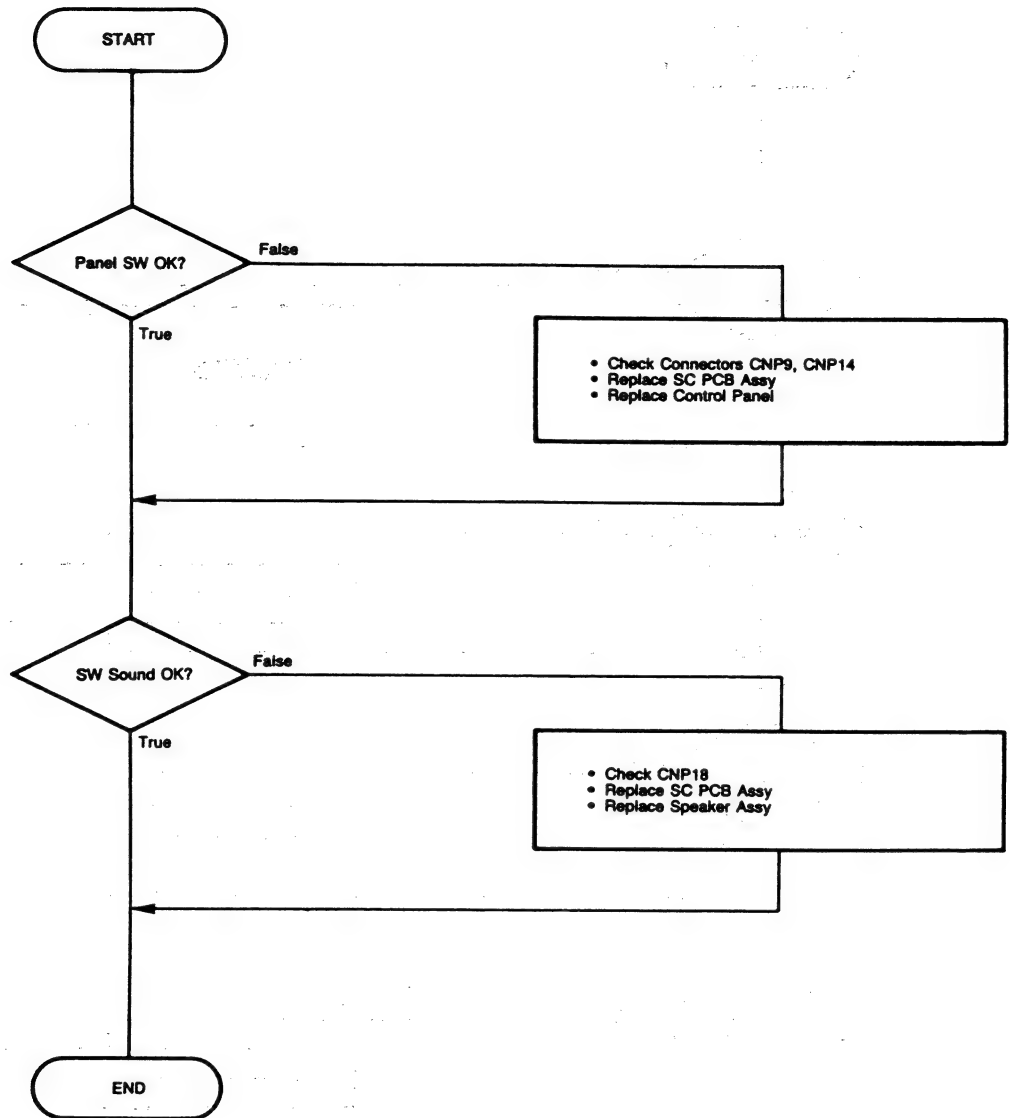


4.5.1.2 Panel

(1) LCD is not displayed.

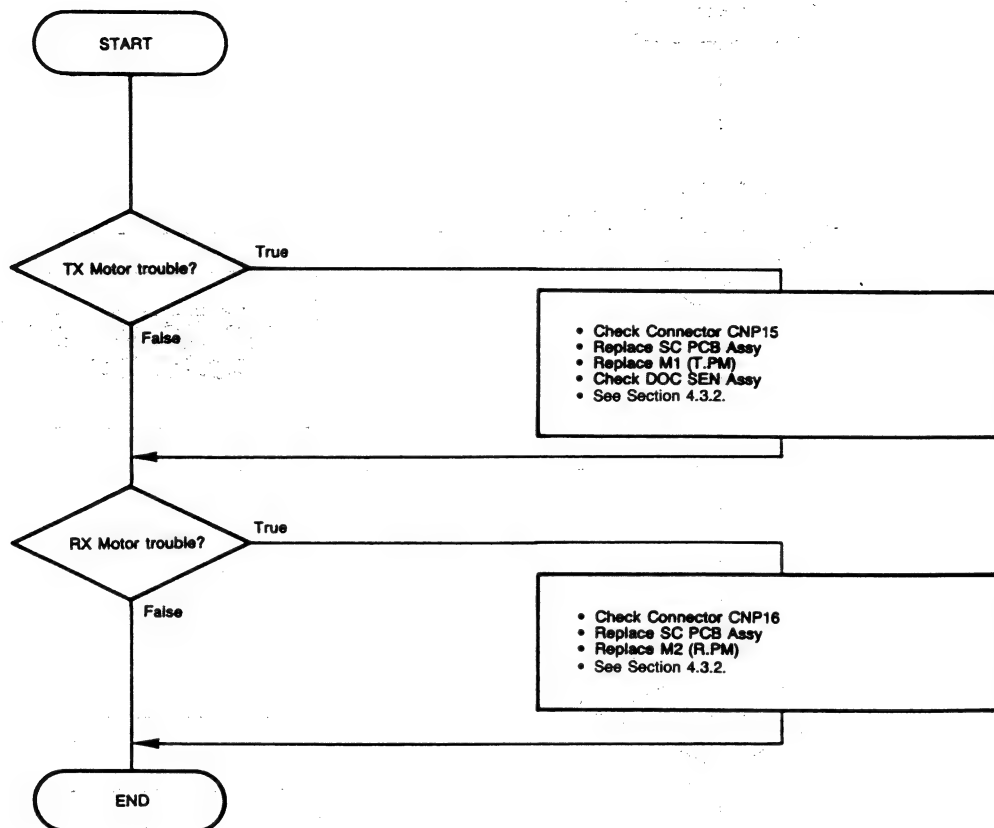


(2) Others



4.5.1.3 Trouble in Copy Mode

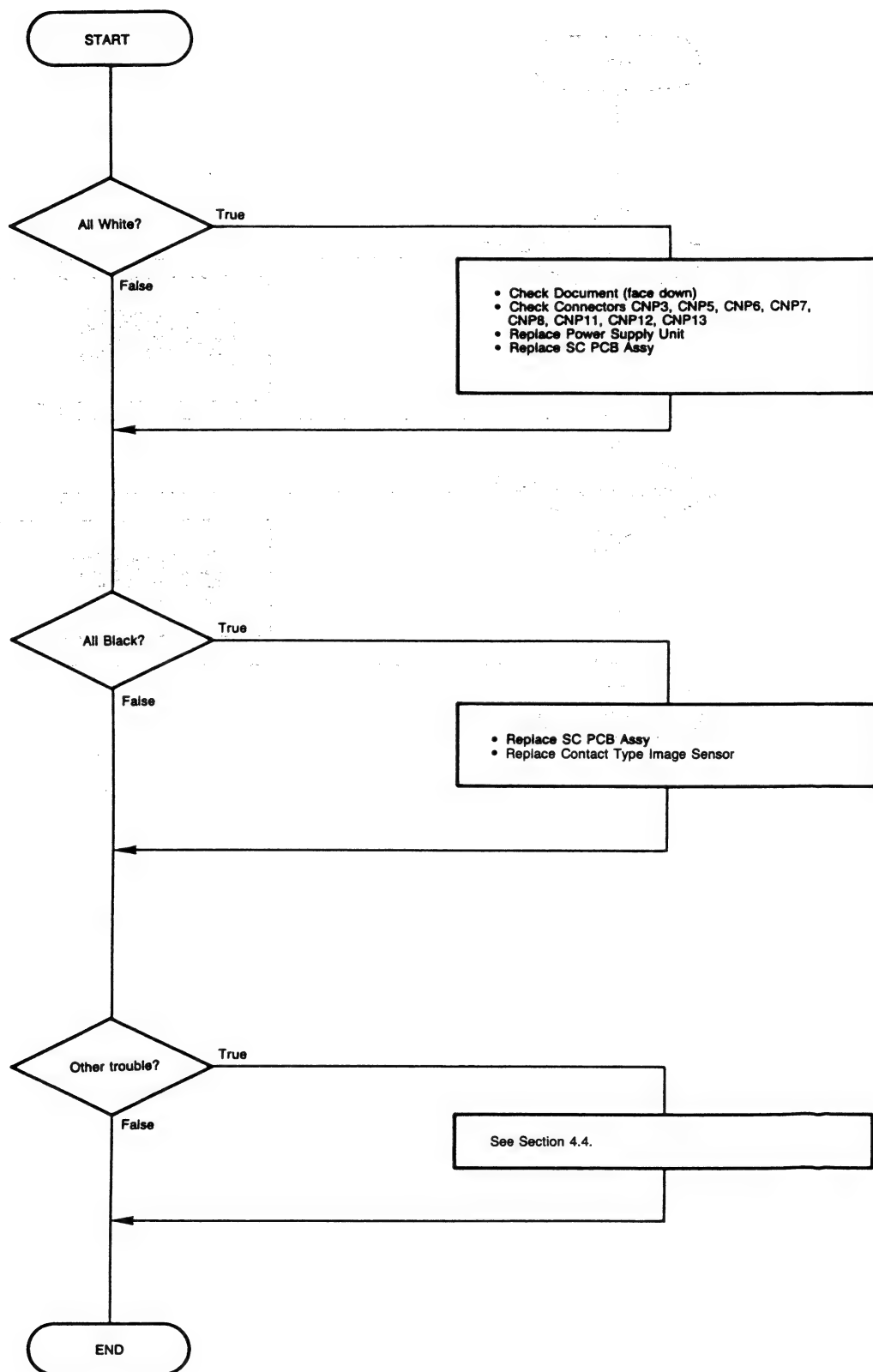
(1) Mechanical



(2) Copy quality trouble

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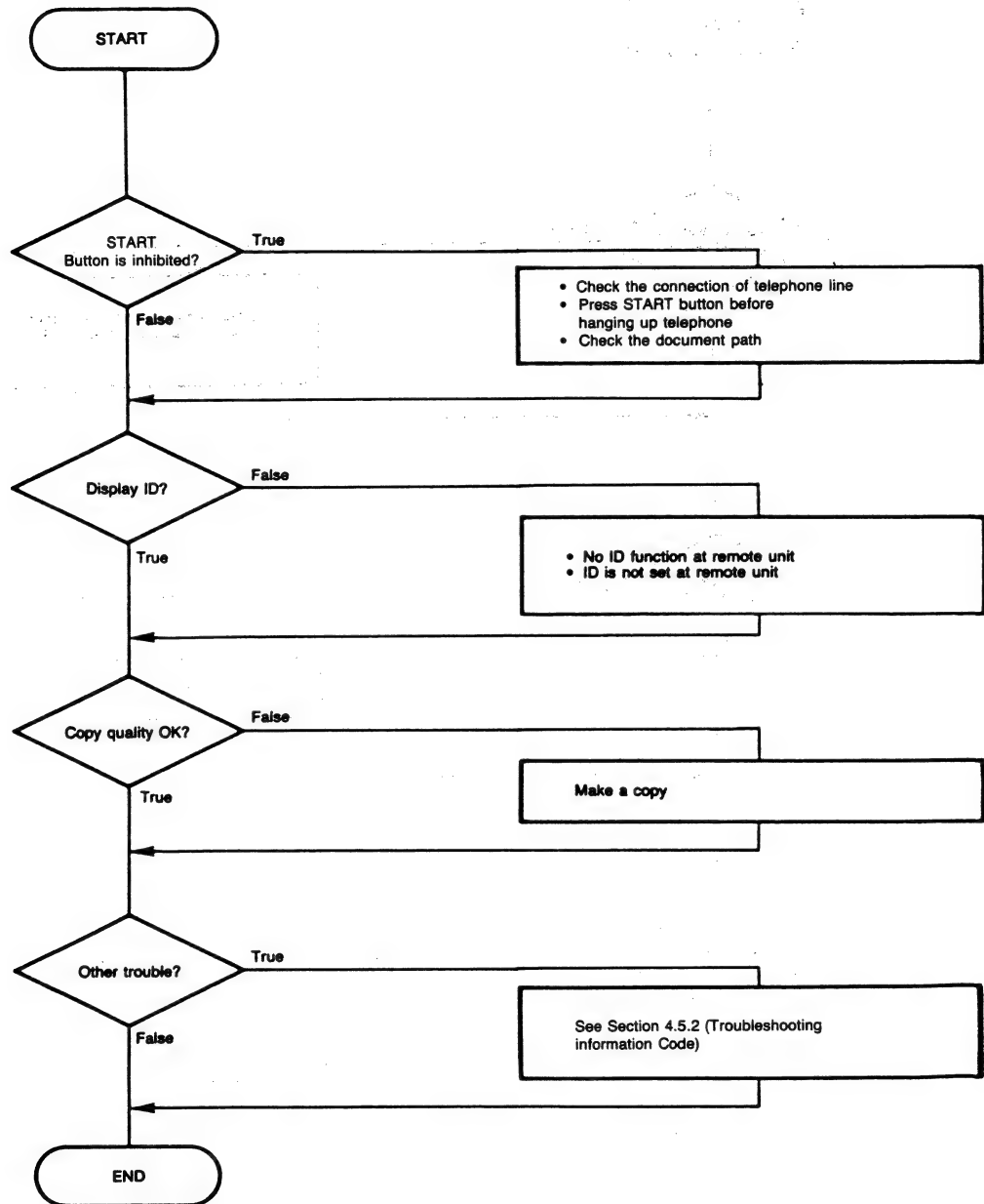
Revised: 04/01/05



4.5.1.4 Communication Trouble

4.5.1.4-3

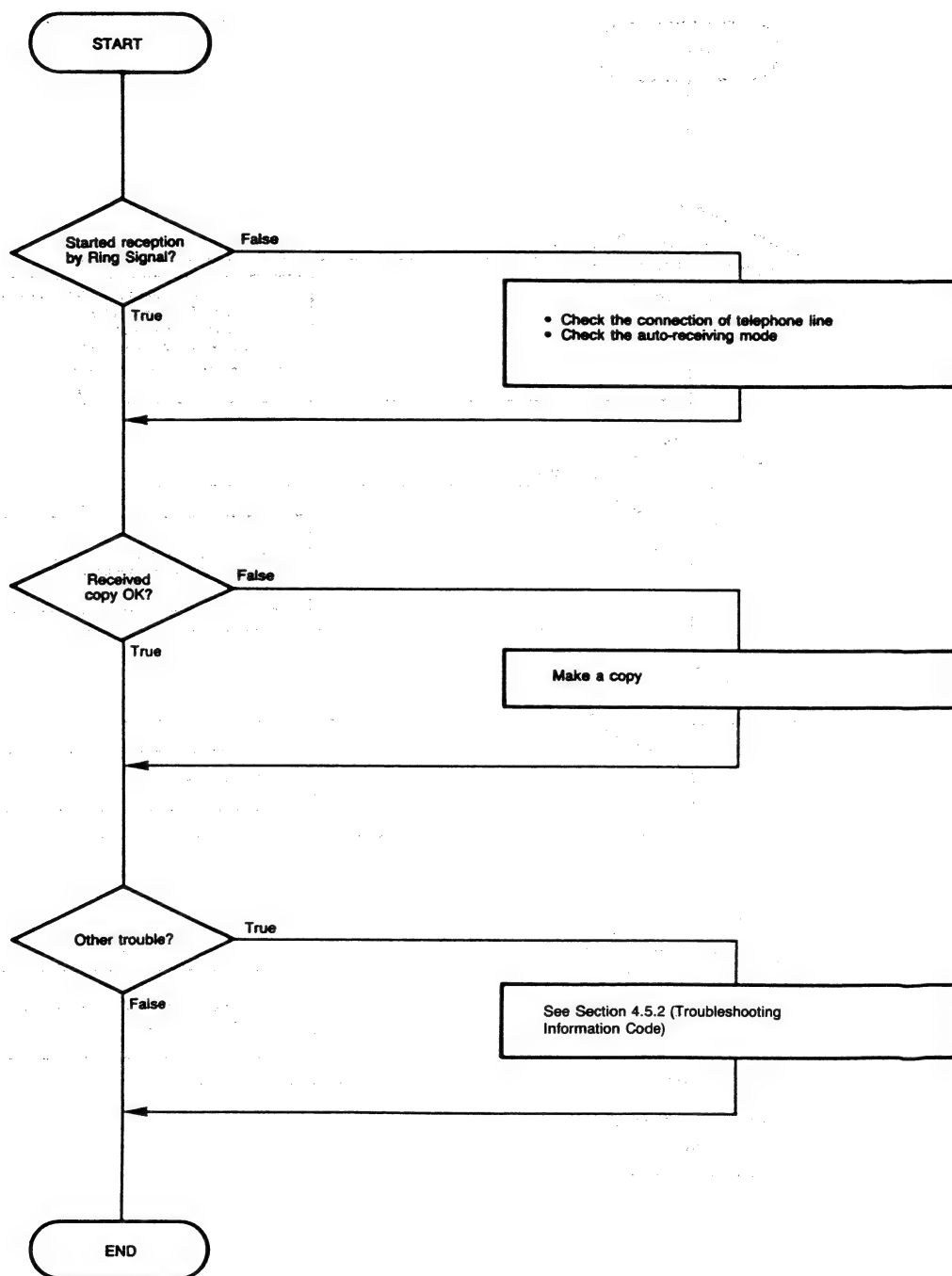
(1) Transmission



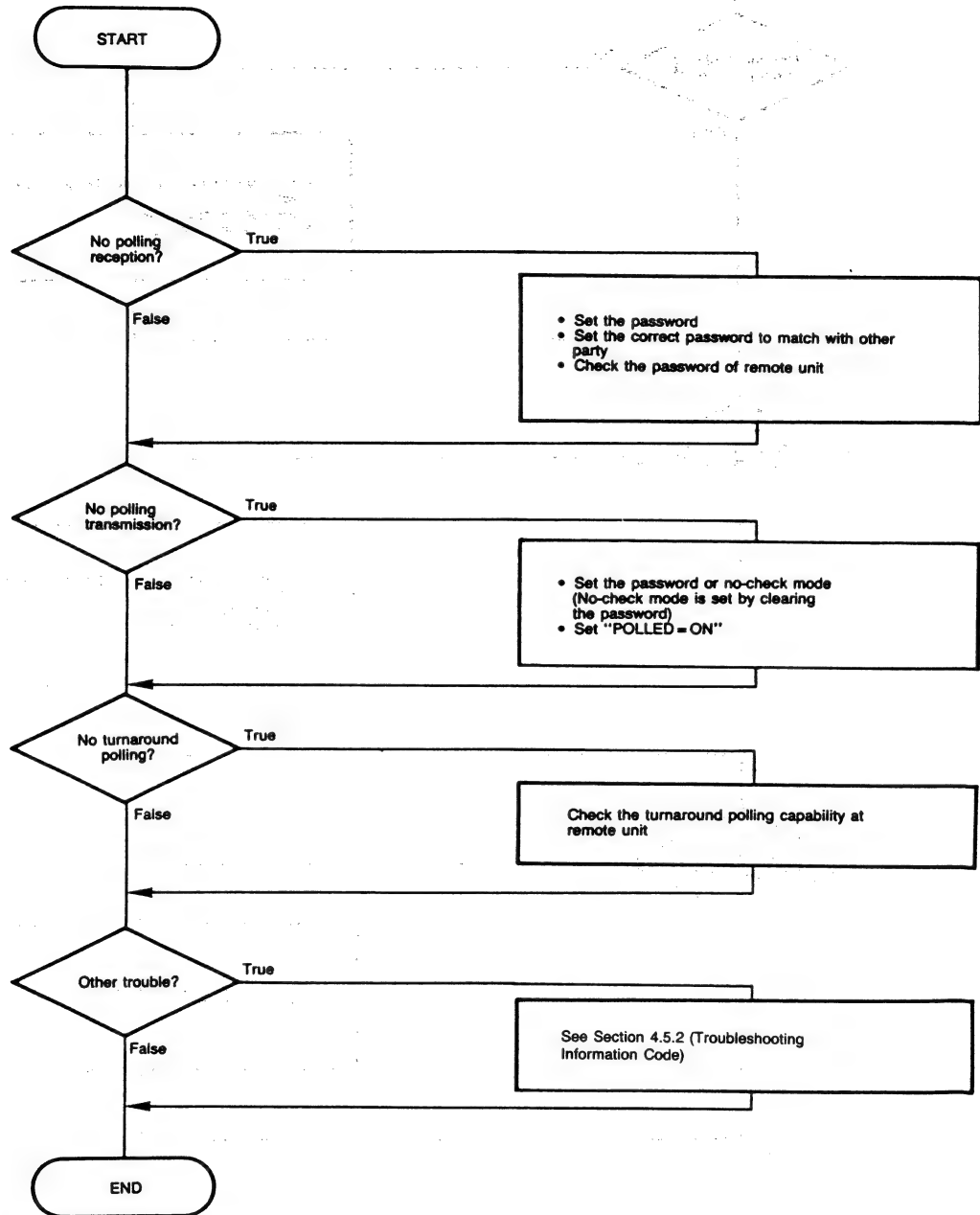
(2) Reception

2021/11/10 20:11:10

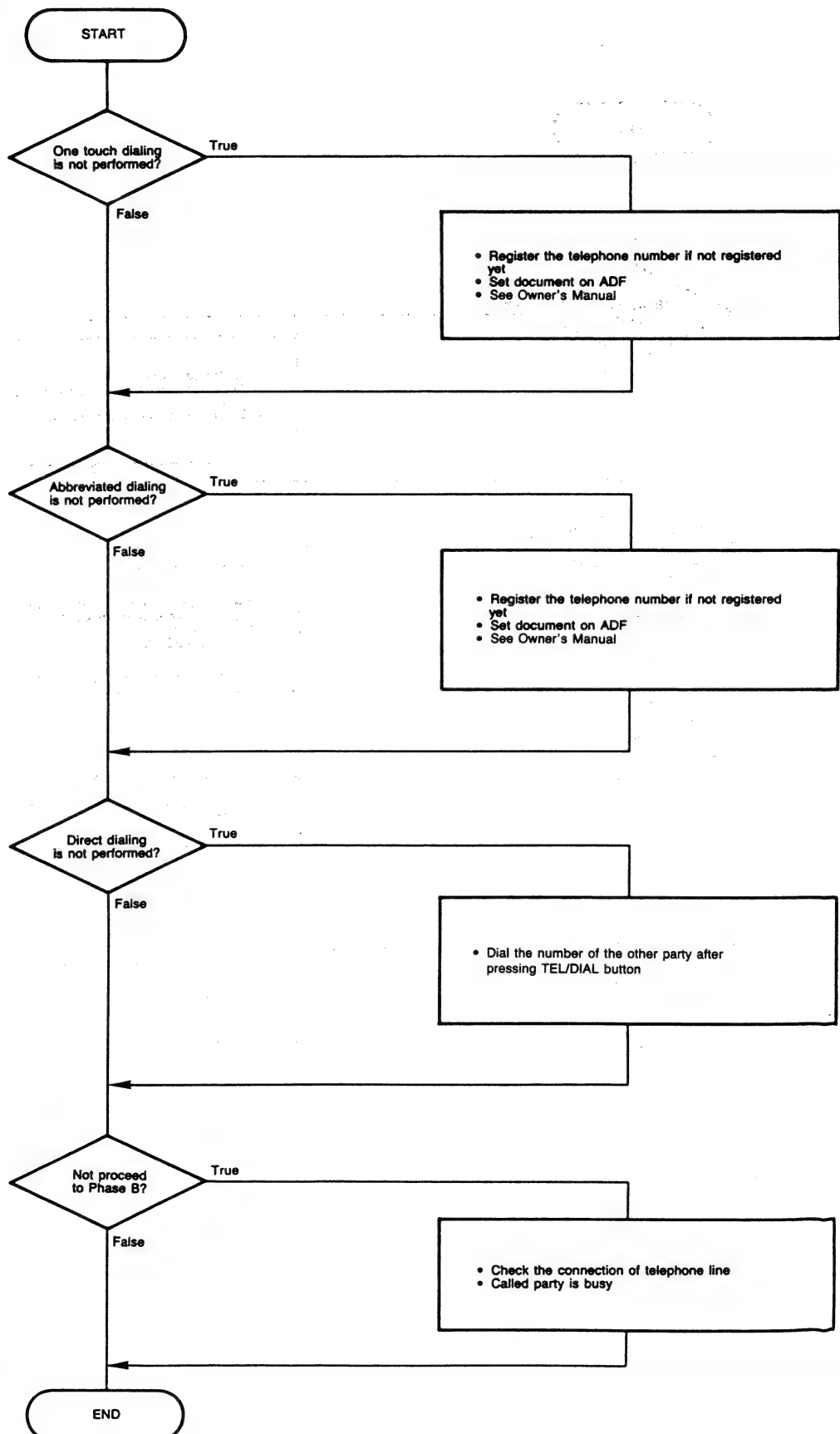
10/11/2021 10:11:10



(3) Polling



4.5.1.5 Dialing Trouble



4.5.2 Troubleshooting Information Code

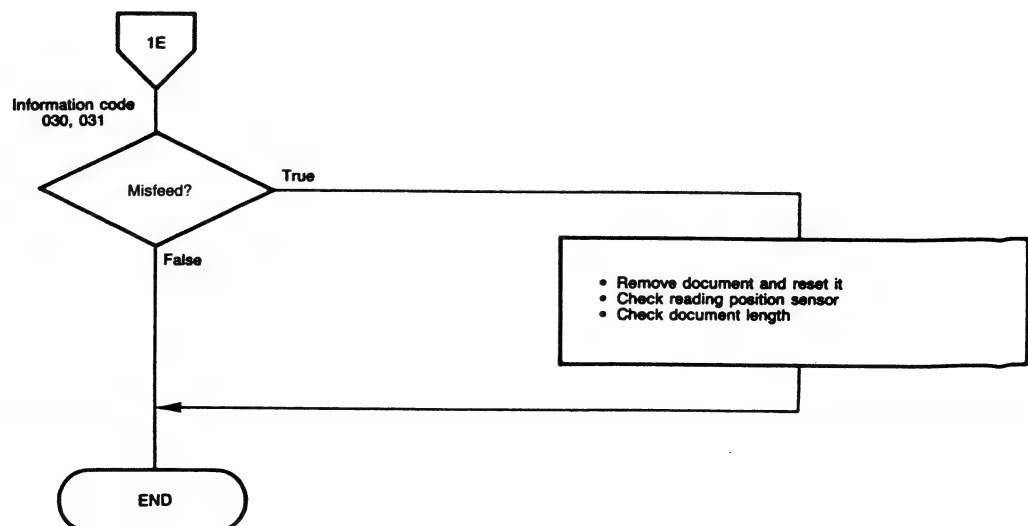
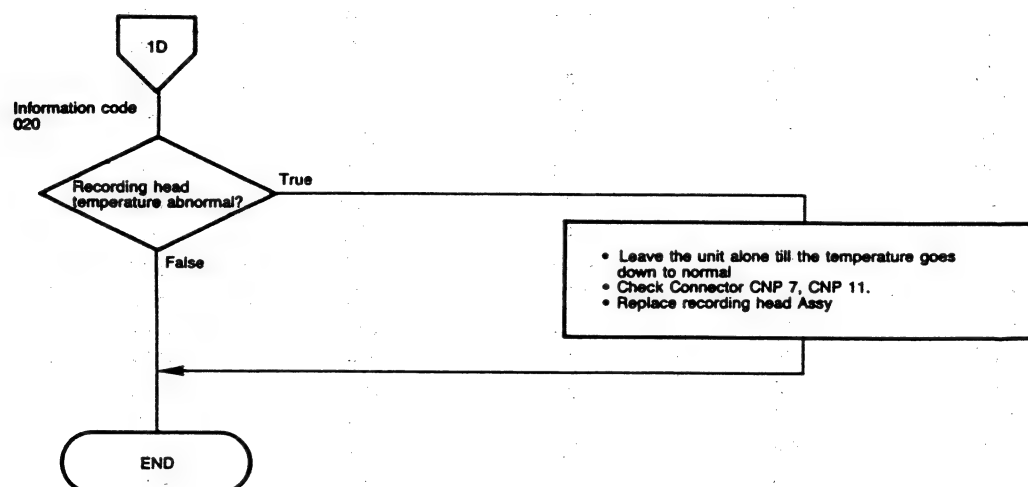
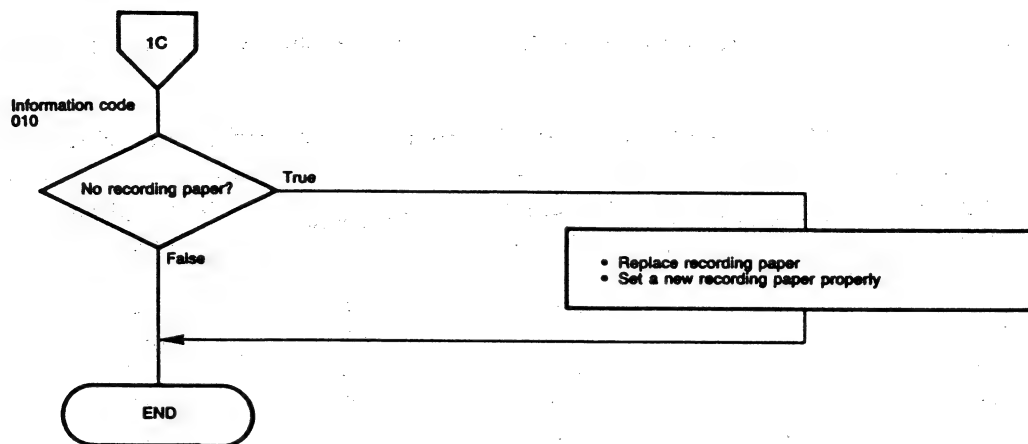
The Table 4.1 shows the information code to be displayed and the entering number of the troubleshooting flowchart. Information codes are listed per 4.6 Information Code Table on page 4-81. The entering number is indicated on each flowchart as shown below:

Example: When "010" is displayed on the UF-140, apply Troubleshooting flowchart 1C on page 4-65.

Table 4.1 Troubleshooting Information Code Reference Table

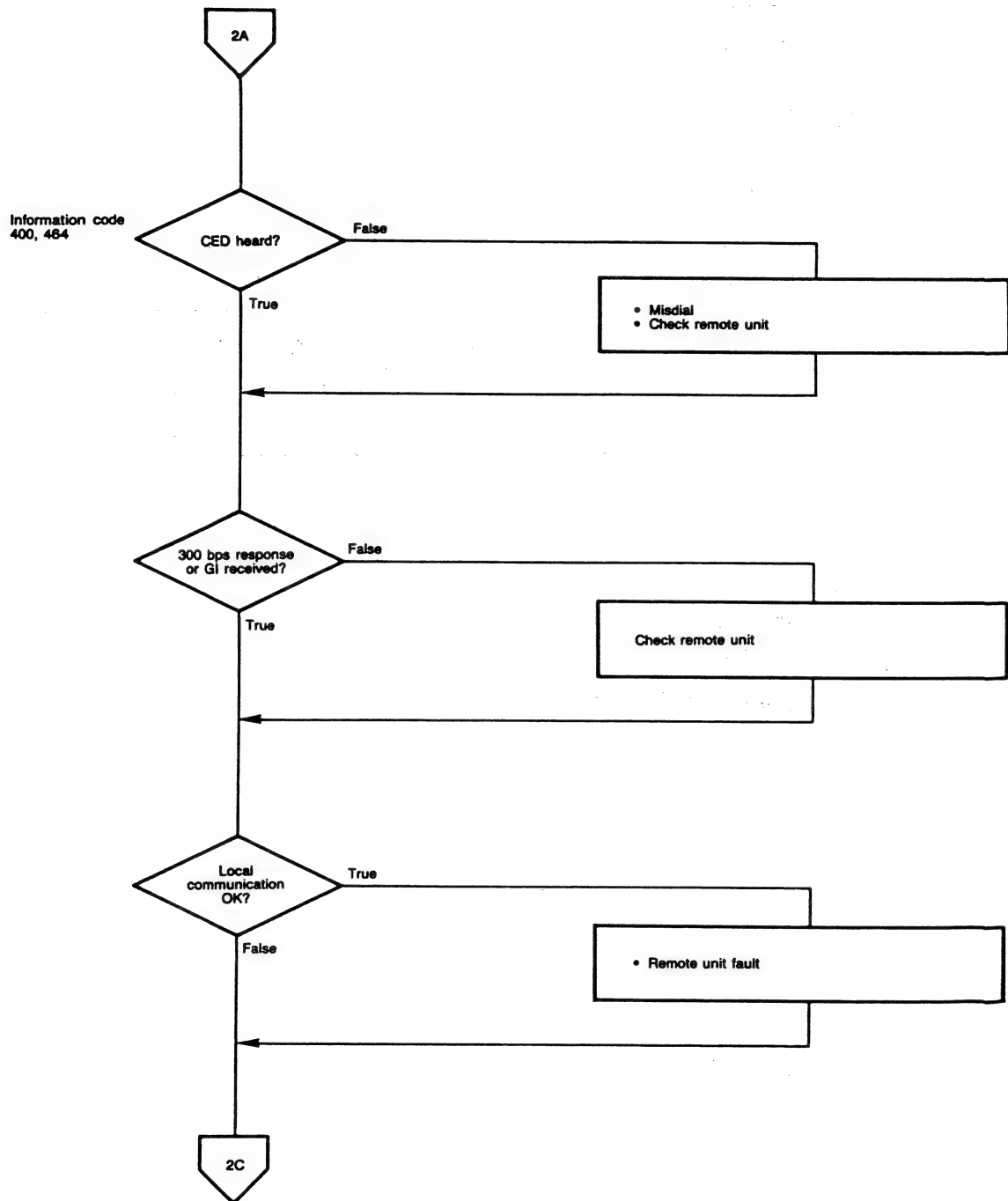
Information code	Flowchart	Information code	Flowchart	Information code	Flowchart
010	1C	415	8A	466	4A
020	1D	416	5A	467	9A
025	6A	417	7A	468	9A
030	1E	418	7A	469	4B
031	1E	419	7A	474	10A
200	6A	420	2B	478	9A
202	6A	422	3A	479	10A
203	6A	427	3A	480	10A
208	6A	429	3A	481	9A
209	6A	431	7A	485	2B
210	6A	432	—	487	—
212	6A	433	6A	490	7A
400	2A	434	9A	493	10A
402	3A	435	10A	494	10A
403	3B	442	7A	495	10A
404	4A	443	3C	500	6A
405	4A	444	3C	599	6A
407	4B	445	3C	621	11C
408	7A	446	5A	622	11D
409	7A	451	10A	623	11B
411	3B	457	3A	630	11A
412	5A	459	10A	637	6A
413	5A	464	2A	638	6A
414	3B	465	9A		

4.5.2.1 Paper Path Trouble (Information Code: 010, 020, 030, 031)



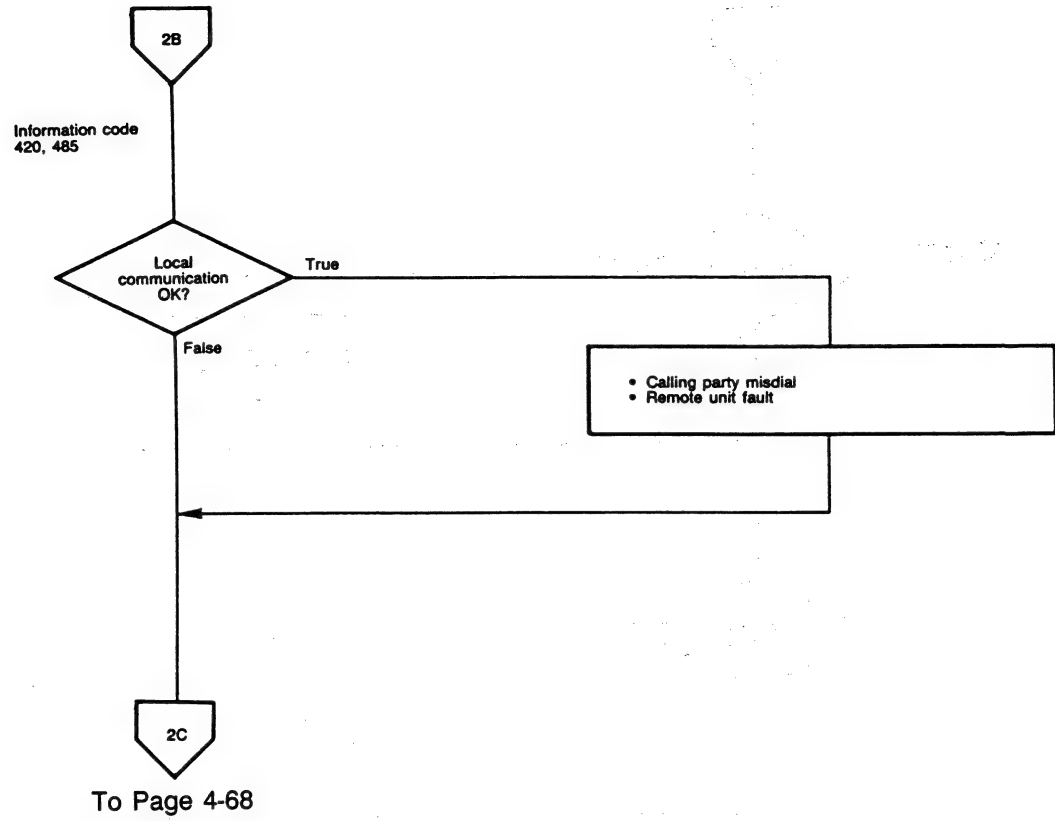
4.5.2.2 T1 Time Over (Information Code: 400, 420, 464, 485)

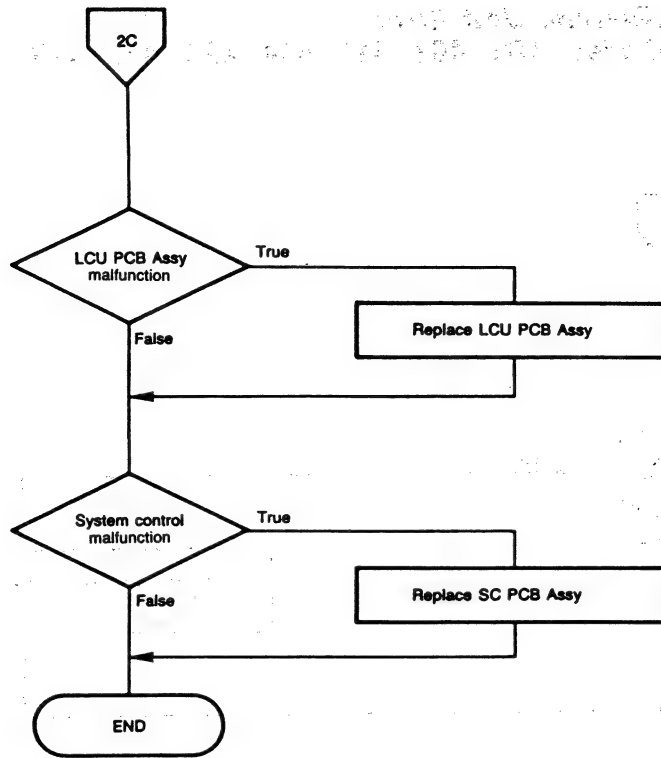
(XMT T1 time over)



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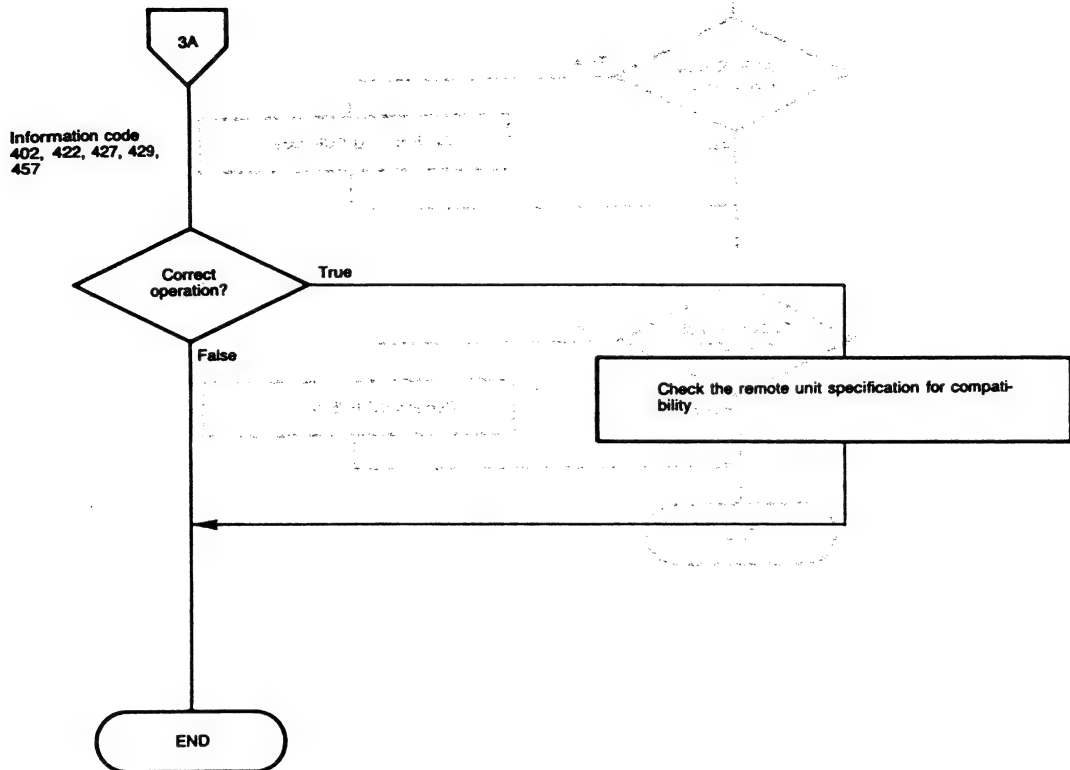
(RX T1 time over)



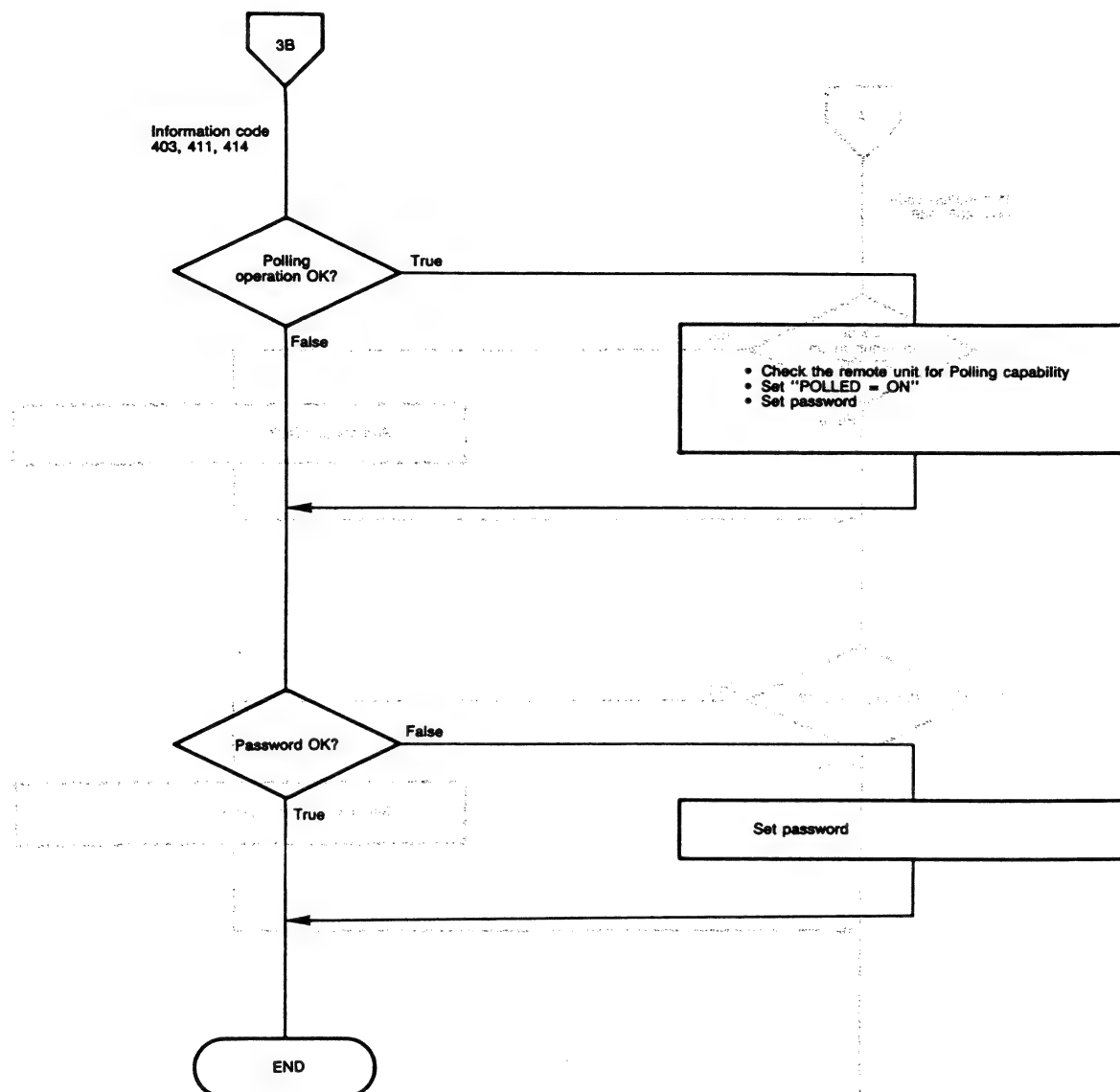


4.5.2.3 Incompatible/Remote Unit Error (Information Code: 402, 403, 411, 414, 422, 427, 429, 443, 444, 445, 457)

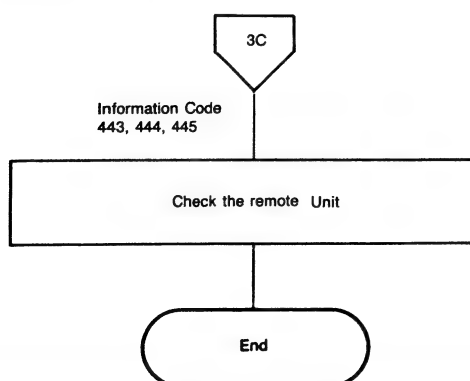
(1) Incompatible



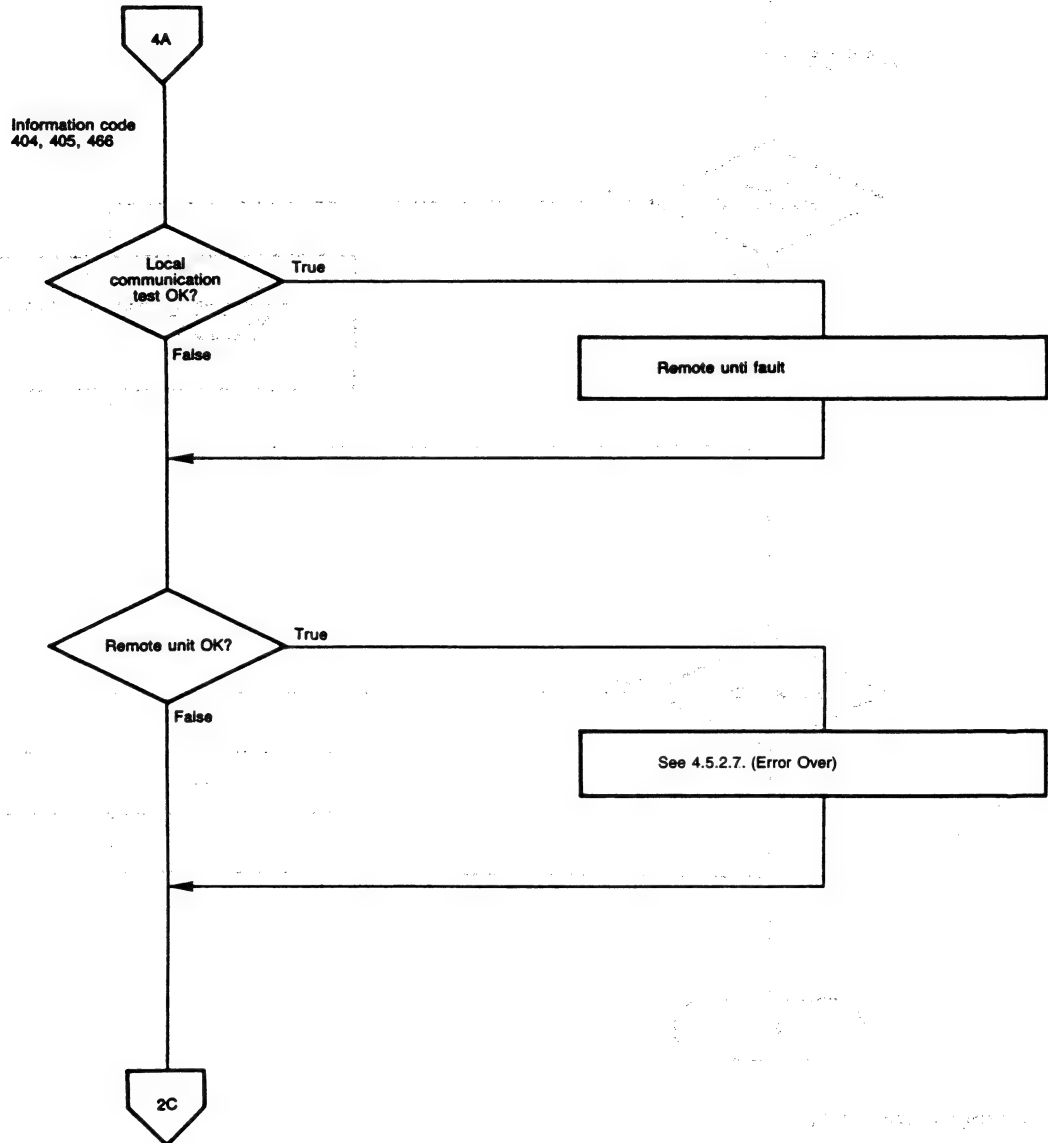
(2) Polling incompatible



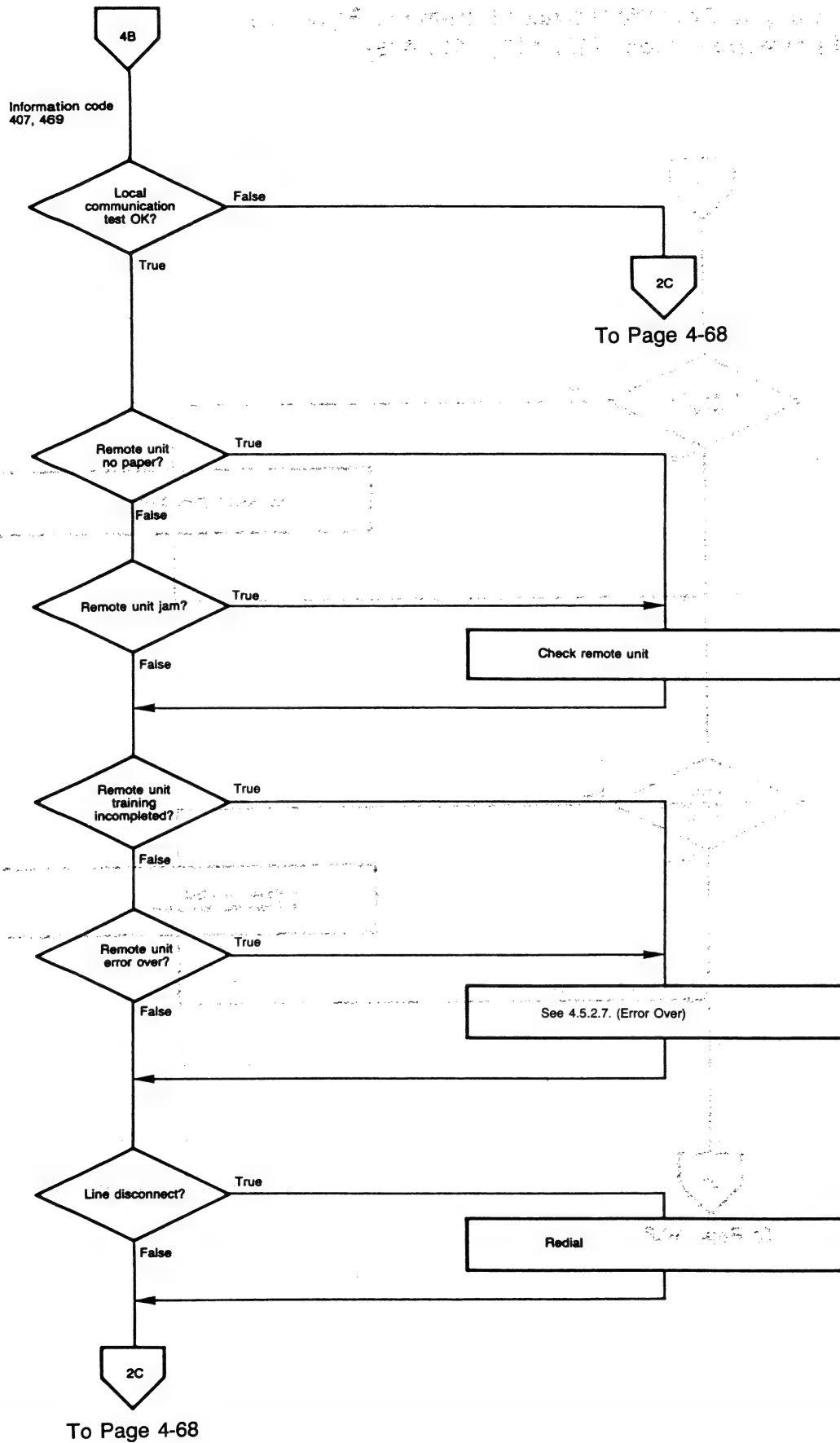
(3) Remote Unit Error



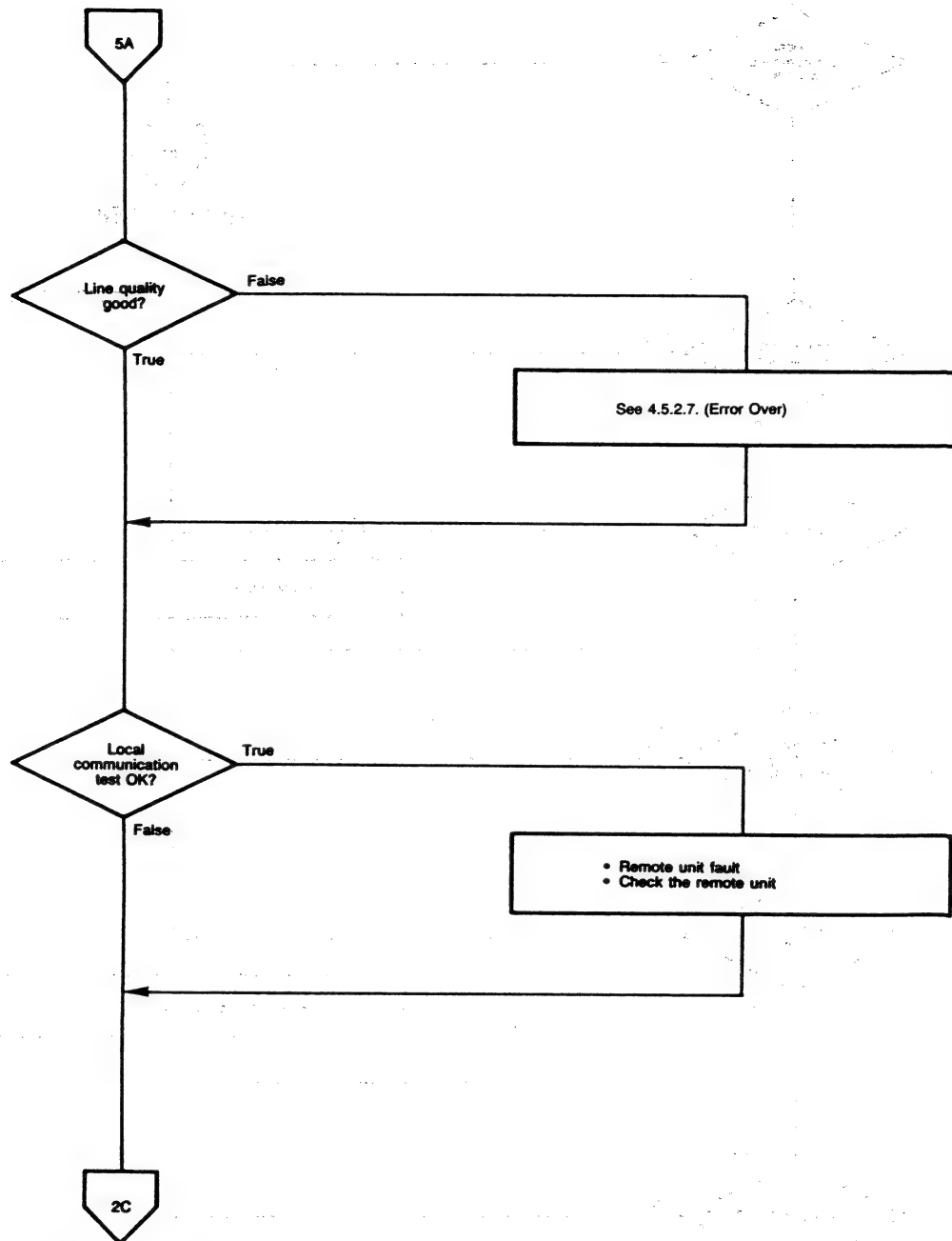
4.5.2.4 No Response (Information Code: 404, 405, 407, 466, 469)



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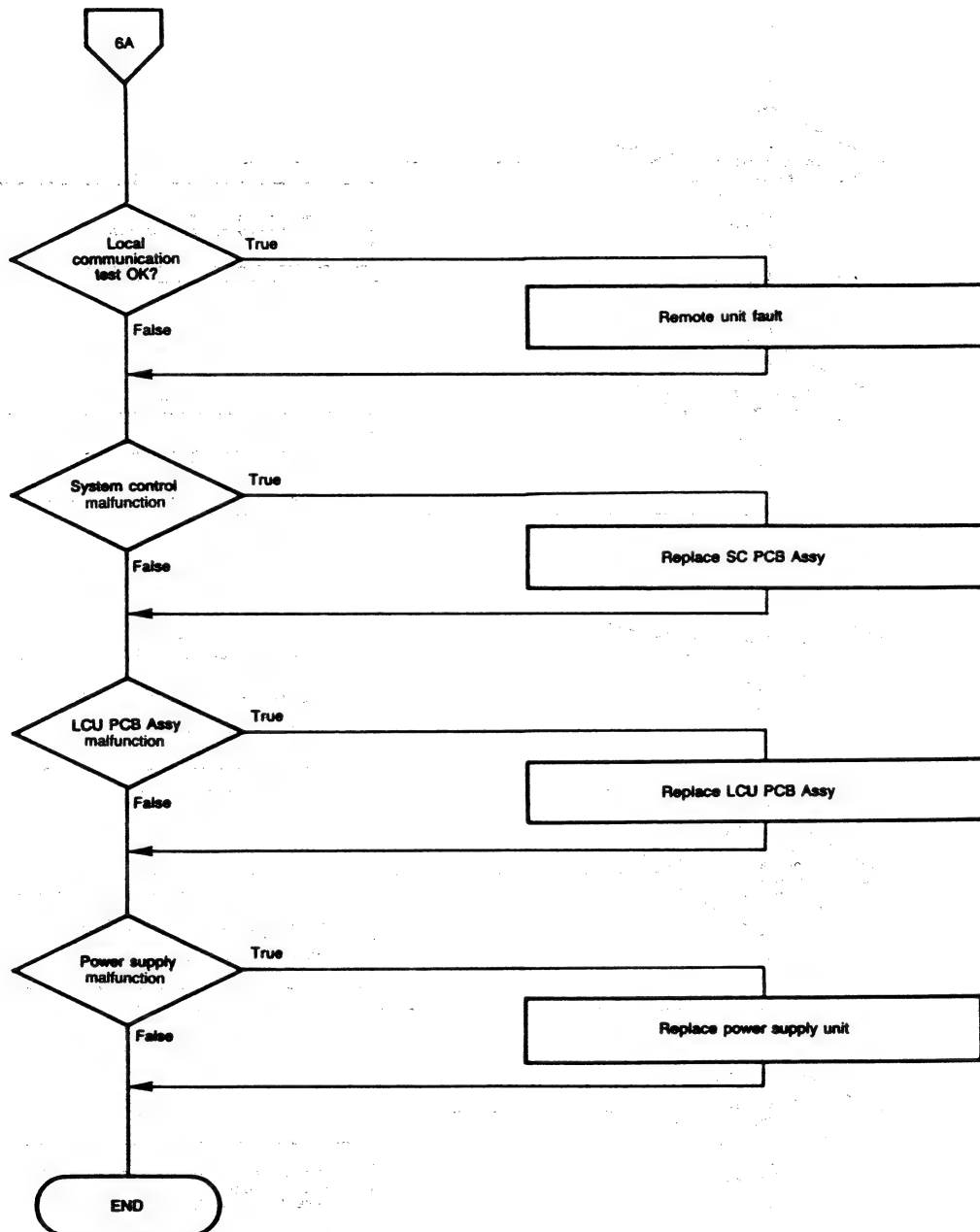


4.5.2.5 No Signal Detection/Invalid Command Received (Information Code: 412, 413, 416, 446)

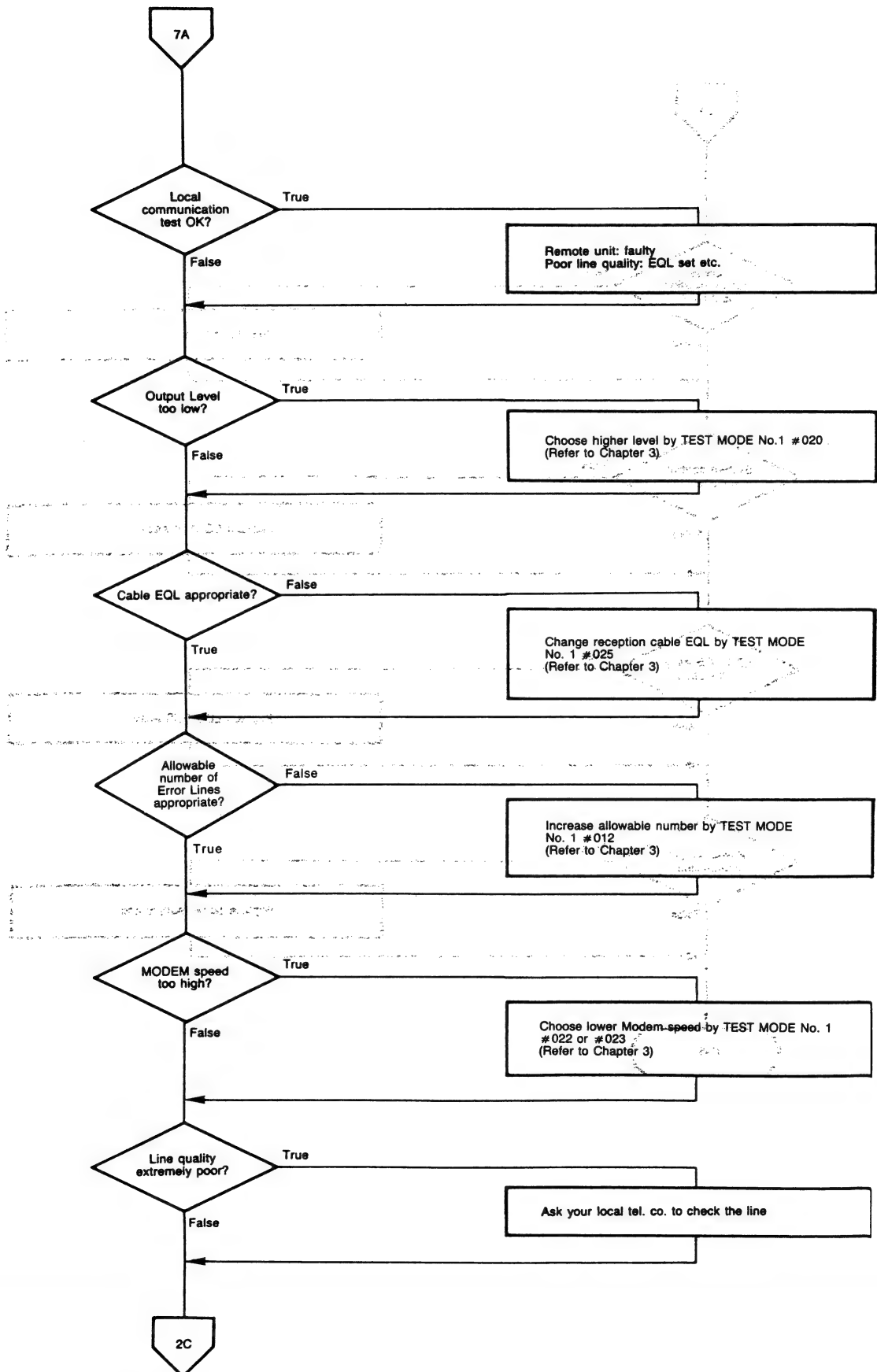


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4.5.2.6 Hardware (Information Code: 025, 200, 202, 203, 208, 209, 210, 212, 433, 500, 599, 637, 638)

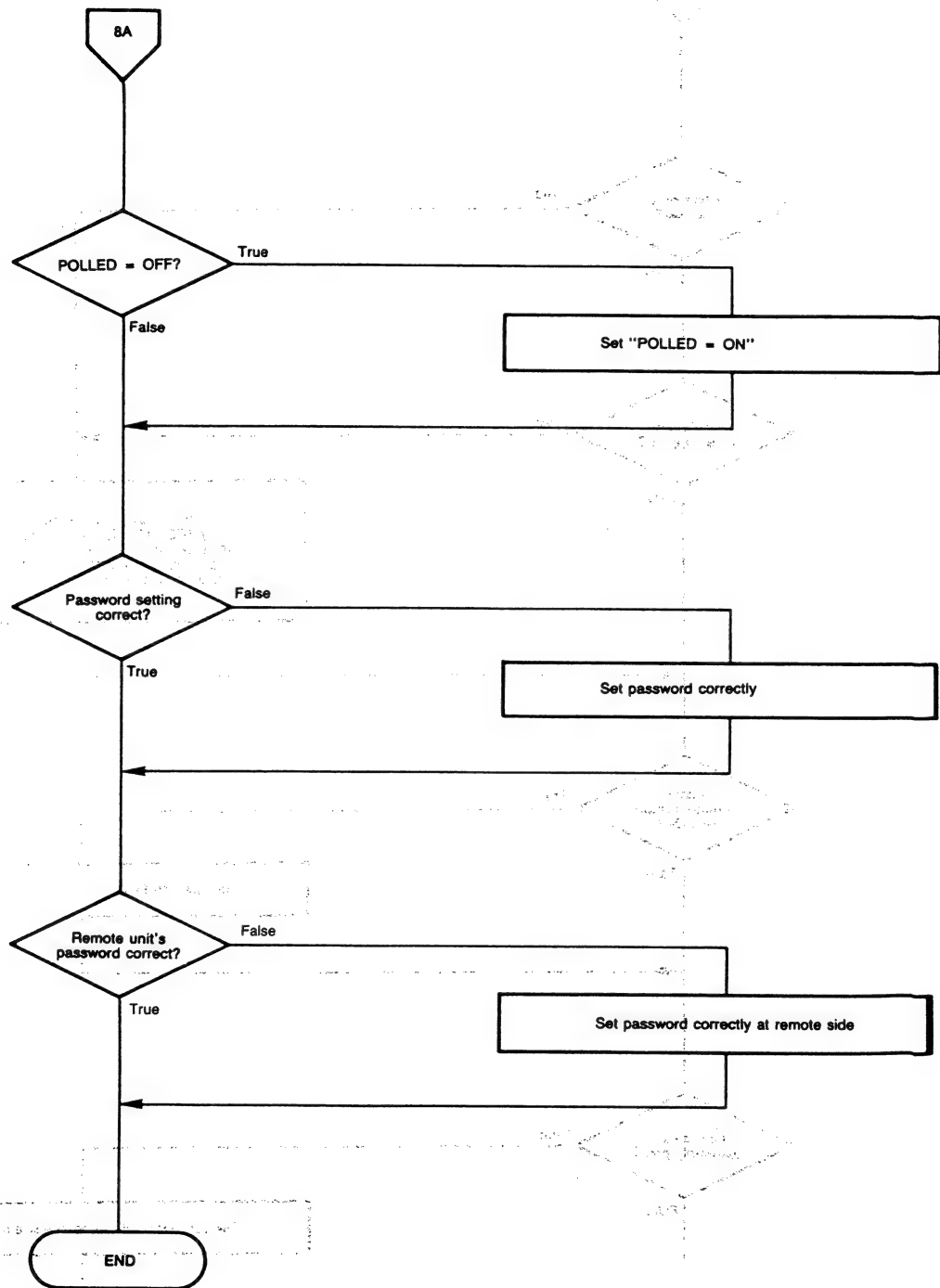


4.5.2.7 Error Over (Information Code: 408, 409, 417, 418, 419, 431, 442, 490)

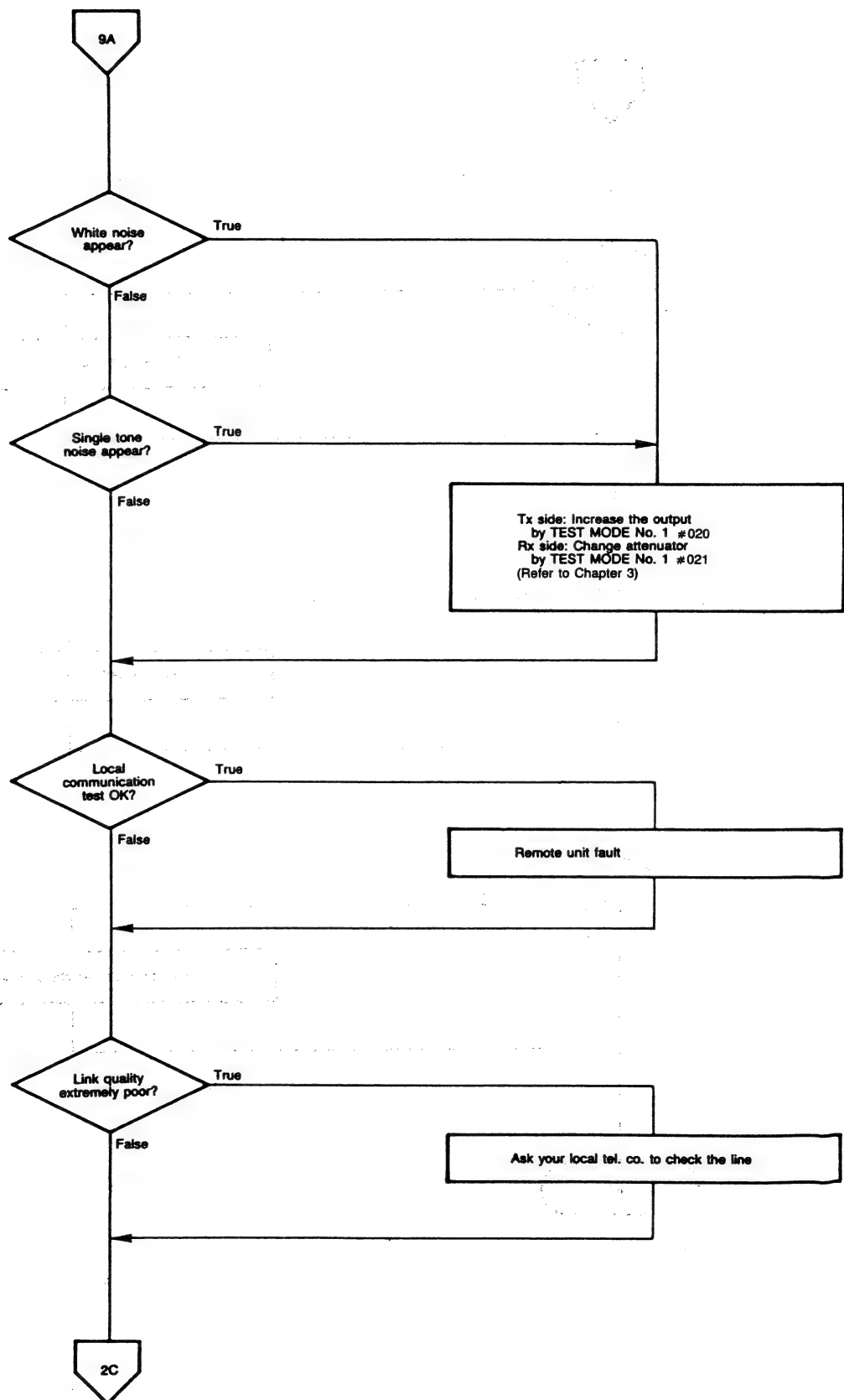


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4.5.2.8 Misoperation (Information Code: 415)

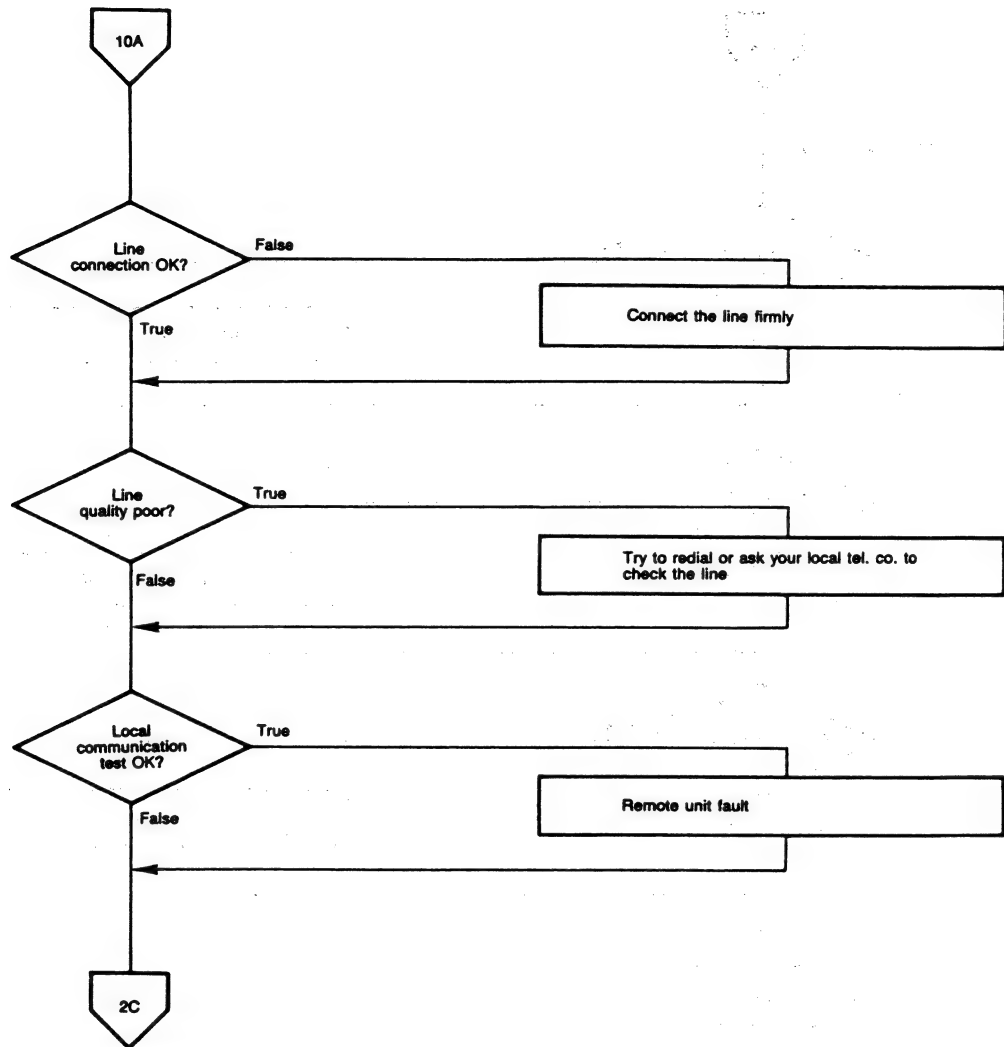


4.5.2.9 CD Doesn't Go OFF (Information Code: 434, 465, 467, 468, 478, 481)



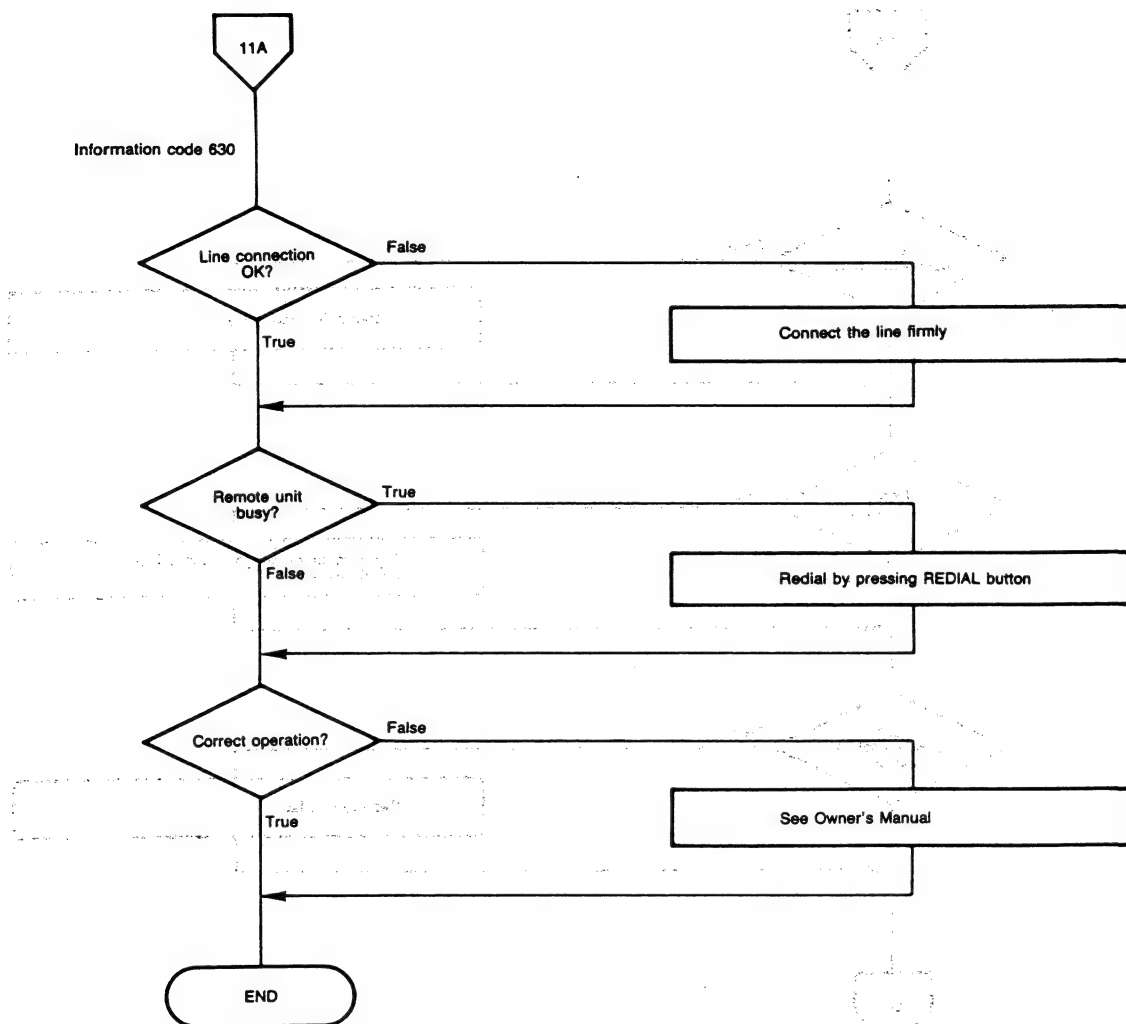
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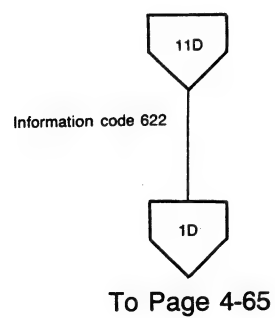
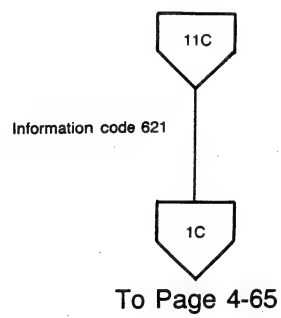
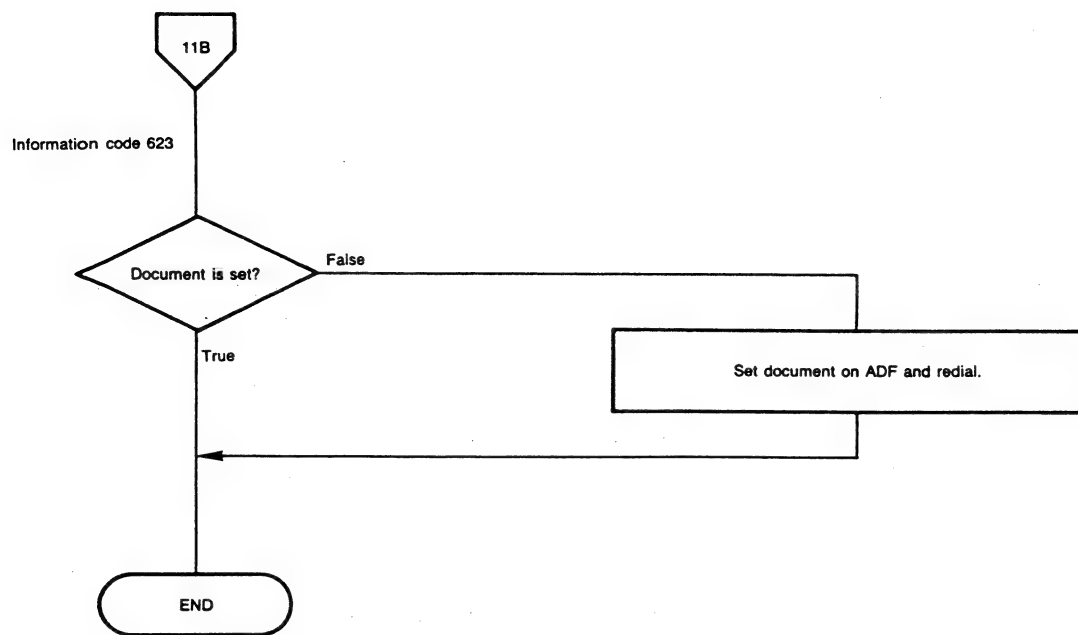
4.5.2.10 Short-Circuit/Line Disconnected, etc. (Information Code: 435, 451, 459, 474, 479, 480, 493, 494, 495)



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4.5.2.11 Dialing Error (Information Code: 621, 622, 623, 630)





4.6 Information Code Table

The information code table is provided to help service personnel diagnose problems in the UF-140.

Information Code	Mode	Phase	Description of problem	Cause	Ref. page
010	RX COPY PRINT	B C	No Recording paper	Recording paper has not been set. Recording paper not set properly.	4-65
020	RX COPY PRINT	C	Thermal head temperature is too high.	Due to abnormal power supply, recording head malfunction or paper jam Connector: Not firmly connected	4-65
025			Power Supply temperature is too high.	Power Supply	4-74
030	TX COPY	B	Read Point Sensor does not come ON within 8 seconds after document feeding.	Document not set properly. Defective Read Point Sensor	4-65
031	TX COPY	C	Document jammed inside the unit.	Document JAM Document length exceeds 39.4" (1 meter). Defective Read Point Sensor	4-65
060			Receiver cover open	Receiver cover open	
200	TX RX COPY		Printing Error	SC (FCA), Thermal Head Image Sensor Connector: Not firmly connected	4-74
202	TX PRINT		Internal error	SC (FCA)	4-74
203	TX RX		Character generator error	SC (FCA)	4-74
208	TX RX		FCA error	SC (FCA)	4-74
209	TX RX COPY		Internal data transfer error	SC (FCA), Image sensor Thermal Head	4-74
210			Modem error	SC (Modem)	4-74
212	TX		Modem error	SC (Modem)	4-74
400	AMS or G3 TX	B	T1 seconds elapsed without GI or 300 bps	Misdial Line: faulty LCU, SC (MODEM): abnormal Remote Unit: abnormal etc.	4-66

Information Code	Mode	Phase	Description of problem	Cause	Ref. page
402	G3 TX	B	DCN reception in NSF/DIS waiting state NSC/DTC	Interface: incompatible	4-69
403	G3 Polling RX	B	No polling capability at the transmission side	"POLLED = ON" is not set at the remote unit.	4-70
404	G3 TX	B	DCN received or no response to three times transmission of NSS/DCS, training, and TCF.	LCU, SC (MODEM): abnormal A remote unit: abnormal	4-71
405	G3 TX	B	FTT received 2400 bps TCF transmitted.	LCU, SC (MODEM): abnormal A remote unit: abnormal Line: faulty	4-71
407	G3 TX	D	No response to three times post messages.	A remote unit: abnormal (error over, paper jam) LCU SC (MODEM): abnormal	4-72
408	G3 TX	D	RTN received	A remote unit: abnormal (error over) LCU, SC (MODEM): abnormal Line: faulty	4-75
409	G3 TX	D	PIN received	A remote unit: abnormal (error over) LCU, SC (MODEM): abnormal Line: faulty	4-75
411	G3 Polling	B	No response to third NSC/DTC transmitted.	A remote unit: abnormal (Passwords do not match, or polling transmission is not ready.)	4-70
412	G3 RX	B D	No response within 10 seconds in NSS/DCS/MPS waiting state. (After transmitting FTT)	A remote unit: abnormal LCU, SC (MODEM): abnormal	4-73
413	G3 RX	C	Received incomplete 300 bps	Remote unit: abnormal LCU, SC (MODEM) Line: faulty	4-73
414	G3 Polling	B	DCN received to NSC/DTC transmitted.	Interface: incompatible A remote unit: abnormal (Passwords do not match)	4-70
415	G3 RX (at polled station)	B	Polling conditions not satisfied after successful NSC/DTC received.	Interface: faulty Passwords: do not match Polling station: not ready (no document in ADF tray)	4-76

Information Code	Mode	Phase	Description of problem	Cause	Ref. page
416	G3 RX	D	No post message in phase D.	A remote unit: abnormal LCU, SC (MODEM): abnormal	4-73
417	G3 RX	C	Error over and RTN transmitted.	LCU, SC (MODEM): abnormal Line: faulty	4-75
418	G3 RX	C	Error over and PRI-Q reception followed by PIN transmission. (Voice contact set by transmitting side)	Line: faulty LCU, SC (MODEM): abnormal	4-75
419	G3 RX	C	Error over and Post message reception followed by PIN transmission. (Voice contact requested by receiving side)	Line: faulty LCU, SC (MODEM): abnormal	4-75
420	AMS or G3 RX	B	T1 seconds elapsed without GC or 300 bps (See Note)	Received the wrong call LCU, SC (MODEM) abnormal A remote unit: abnormal	4-67
422	G3 TX	B	NSF/DIS or NSC/DTC contents invalid.	Interface: incompatible	4-69
427	G3 RX	B	DCN received to NSF/CSI/DIS transmitted.	Interface: incompatible Remote unit: password XMT set	4-69
429	G3 RX	B	DCS contents invalid.	Interface: incompatible	4-69
431	G3 RX	B	Received incomplete training signal	Line: faulty Remote unit: abnormal LCU, SC (MODEM): abnormal	4-75
433	300 BPS TX	B, D	300 bps TX error	SC (MODEM)	4-74
434	300 BPS RX	B, D	CD does not go OFF within 180 seconds after FLAG reception.	A remote unit: abnormal LCU, SC (MODEM): abnormal	4-77
435	G3 RX	C, D	Phase-C: Received incomplete 300 bps Phase-D: No command received to Phase-D response	Line: faulty Remote unit: abnormal LCU, SC (MODEM): abnormal	4-78
442	G3 TX	D	RTN PIN Received	Remote unit: Error over	4-75
443	G3 TX	D	RTN PIN Received	Remote unit: No paper	4-70
444	G3 TX	D	RTN PIN Received	Remote unit: Recording paper jam	4-70

Note: The information code 420 is not displayed on LCD.

Information Code	Mode	Phase	Description of problem	Cause	Ref. page
445	G3 TX	D	RTN PIN Received	Remote unit: Thermal head trouble	4-70
446	G3 RX	D	DCN received when waiting for post message	Remote unit: abnormal	4-73
451	TX and RX	B C D	Detect the close of the loop current for 1.2 seconds during communication	Line: disconnected A remote unit: abnormal	4-78
457	Relayed TX Conf. TX Conf. Poll RX	B	No Relay/Conf. capability at remote unit	Remote unit: Center machine function not set	4-69
459	G3 RX	C	In phase C training is not completed within 10 seconds.	LCU, SC (MODEM): abnormal Line: faulty	4-78
464	G2 TX	B	T1 seconds elapsed without GI.	Miss dial LCU, SC (MODEM): abnormal Line: faulty A remote unit: abnormal	4-66
465	G2 TX	B	GI does not go OFF within 30 seconds.	LCU, SC (MODEM): abnormal Line: faulty A remote unit: abnormal	4-77
466	G2 TX	B	CFR not detected within 3 seconds after phasing transmission	LCU, SC (MODEM): abnormal Line: faulty A remote unit: phasing do not match	4-71
467	G2 TX	B	CFR does not go OFF within 10 seconds.	LCU, SC (MODEM): abnormal Line: faulty A remote unit: abnormal	4-77
468	G2 TX	D	MCF does not go OFF within 10 seconds.	LCU, SC (MODEM): abnormal Line: faulty A remote unit: abnormal	4-77
469	G2 TX	D	MCF or PIS not detected within 3 seconds.	LCU, SC (MODEM): abnormal Line: faulty (line disconnection) A remote unit: abnormal	4-72
474	G2	B	Phase matching not attained within 15 seconds.	Line: faulty LCU, SC (MODEM): abnormal	4-78
478	G2 RX	B	Phase signal does not go OFF within 8 seconds after phase matching was attained.	A remote unit: abnormal LCU, SC (MODEM): abnormal	4-77
479	G2 RX	C	Phase C signal not detected within 10 seconds after CFR transmission.	A remote unit: jam Line: disconnected LCU, SC (MODEM): abnormal	4-78

Information Code	Mode	Phase	Description of problem	Cause	Ref. page
480	G2 RX	C	CD goes OFF in phase C (EOM or PIS not detected).	LCU, SC (MODEM): abnormal Line: faulty A remote unit: abnormal	4-78
481	G2 RX	D	EOM does not go OFF within 10 seconds.	LCU, SC (MODEM): abnormal Line: faulty A remote unit: abnormal	4-77
485	G2 RX	B	T1 seconds elapsed without GC.	Received the wrong call A remote unit: abnormal Line: faulty LCU, SC (MODEM): abnormal	4-67
490	G3 RX	C	64 lines error after error over.	Line: faulty LCU, SC (MODEM): abnormal	4-75
493	G3 RX	C	EOL not detected within 10 seconds.	A remote unit: jam LCU, SC (MODEM): abnormal	4-78
494	G3 RX	C	Inter-EOL period exceeds 10 seconds during phase C.	A remote unit: abnormal LCU, SC (MODEM): abnormal Line: faulty	4-78
495	G3 RX	C	CD goes OFF in phase C.	Line: disconnected A remote unit: abnormal (jam) LCU, SC (MODEM): abnormal	4-78
500	TX RX		Handshake error between CPU and Modem	SC	4-74
599	TX RX		Modem error	SC (FCA, MODEM) Image Sensor, Thermal Head	4-74
621	Poll RX	A	Unable to dial (Deferred or Multi-station pulling or redial)	No recording paper	4-80
622	Poll RX	A	Unable to dial (Deferred or Multi-station pulling or redial)	Thermal Head Temperature is too high.	4-80
623	TX	B	No document on ADF in autodial transmission.	Removed document from ADF after dialing.	4-80
630	TX or polling	B	Redial error: Last redial failed	<ul style="list-style-type: none"> • Not detect dial tone or 2nd dial tone • Detect busy tone • No response from remote unit is detected after pre-set number of redials. 	4-79
637	TX, RX		Internal Error	Internal Error	4-74
638	TX, RX COPY REPORT		Power failure occurred	Power failure occurred	4-74

4.7 Diagnostic Code

This helps service personnel to know the current communication status on the unit and the self diagnostic code consisting of 12 digits hexadecimal numeral which is printed in the Journal Print. Using the diagnostic code definition table to investigate the cause of trouble and the information for taking corrective measure.

Diagnostic code on Journal print (1/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 1	Definition
0	—
1	—
2	STOP SW ON
3	—
4	—
5	—
6	—
7	—
8	Auto Dial
9	—
A	Auto Dial, STOP SW ON
B	—
C	—
D	—
E	—
F	—

—: Not defined

Diagnostic code on Journal print (2/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 2	Definition
0	—
1	Unattended Rx (Rx ring in)
2	Attended Rx
3	—
4	ID Rx
5	ID Rx, Unattended Rx (Rx ring in)
6	ID Rx, Attended Rx
7	—
8	Reverse polling
9	Reverse polling, Unattended Rx (Rx ring in)
A	Reverse polling, Attended Rx
B	—
C	Reverse polling, ID Rx
D	Reverse polling, Unattended Rx (Rx ring in), ID Rx
E	Reverse polling, Attended Rx, ID Rx
F	—

—: Not defined

Diagnostic code on Journal print (3/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 3	Definition
0	—
1	Relayed XMT
2	Short protocol
3	Relayed XMT, Short protocol
4	—
5	—
6	—
7	—
8	—
9	—
A	—
B	—
C	—
D	—
E	—
F	—

—: Not defined

Diagnostic code on Journal print (4/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 4	Definition
0	—
1	—
2	Rx
3	Polling Rx
4	Tx
5	—
6	—
7	—
8	Reverse polling comm.
9	—
A	Reverse polling comm., Rx
B	—
C	Reverse polling comm., Tx
D	—
E	—
F	—

— : Not defined

Diagnostic code on Journal print (5/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 5	Definition
0	—
1	—
2	G2 comm.
3	—
4	G3 standard comm.
5	—
6	—
7	—
8	G3 Non-standard comm.
9	—
A	—
B	—
C	—
D	—
E	—
F	—

— : Not defined

Diagnostic code on Journal print (6/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 6	Definition
0	—
1	—
2	—
3	—
4	—
5	—
6	—
7	—
8	—
9	—
A	—
B	—
C	—
D	—
E	—
F	—

—: Not defined

Diagnostic code on Journal print (7/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 7	Definition
0	—
1	—
2	STD (Resolution), MH
3	—
4	Fine (Resolution), MH
5	—
6	S. Fine (Resolution), MH
7	—
8	—
9	—
A	STD (Resolution), MR
B	—
C	Fine (Resolution), MR
D	—
E	S. Fine (Resolution), MR
F	—

—: Not defined

Diagnostic code on Journal print (8/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 8	Definition
0	Modem speed 2400 bps.
1	Modem speed 2400 bps, Polled
2	Modem speed 2400 bps, White Line Skip Type II
3	Modem speed 2400 bps, White Line Skip Type II, Polled
4	Modem speed 4800 bps
5	Modem speed 4800 bps, Polled
6	Modem speed 4800 bps, White Line Skip Type II
7	Modem speed 4800 bps, White Line Skip Type II, Polled
8	Modem speed 7200 bps
9	Modem speed 7200 bps, Polled
A	Modem speed 7200 bps, White Line Skip Type II
B	Modem speed 7200 bps, White Line Skip Type II, Polled
C	Modem speed 9600 bps
D	Modem speed 9600 bps, Polled
E	Modem speed 9600 bps, White Line Skip Type II
F	Modem speed 9600 bps, White Line Skip Type II, Polled

— : Not defined

Diagnostic code on Journal print (9/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 9	Definition
0	Scanning rate 20 ms/ℓ
1	Scanning rate 5 ms/ℓ
2	Scanning rate 10 ms/ℓ
3	—
4	Scanning rate 40 ms/ℓ
5	—
6	—
7	Scanning rate 0 ms/ℓ
8	—
9	—
A	—
B	—
C	—
D	—
E	—
F	—

— : Not defined

Diagnostic code on Journal print (10/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 10	Definition
0	Paper length A4
1	—
2	—
3	—
4	Paper length B4
5	—
6	—
7	—
8	Paper length No Limit
9	—
A	—
B	—
C	—
D	—
E	—
F	—

—: Not defined

Diagnostic code on Journal print (11/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 11	Definition
0	—
1	Confidential Comm.
2	—
3	—
4	—
5	—
6	—
7	—
8	—
9	—
A	—
B	—
C	—
D	—
E	—
F	—

—: Not defined

Diagnostic code on Journal print (12/12)

8 4 0 4 8 0 C C 1 8 0 0

Data 12	Definition
0	No White Line Skip
1	—
2	—
3	—
4	MWS (White Line Skip),
5	—
6	—
7	—
8	MWS (White Line Skip Type II)
9	—
A	—
B	—
C	—
D	—
E	—
F	—

—: Not defined

Chapter 5 SYSTEM OPERATION

CHAPTER 5 SYSTEM OPERATION

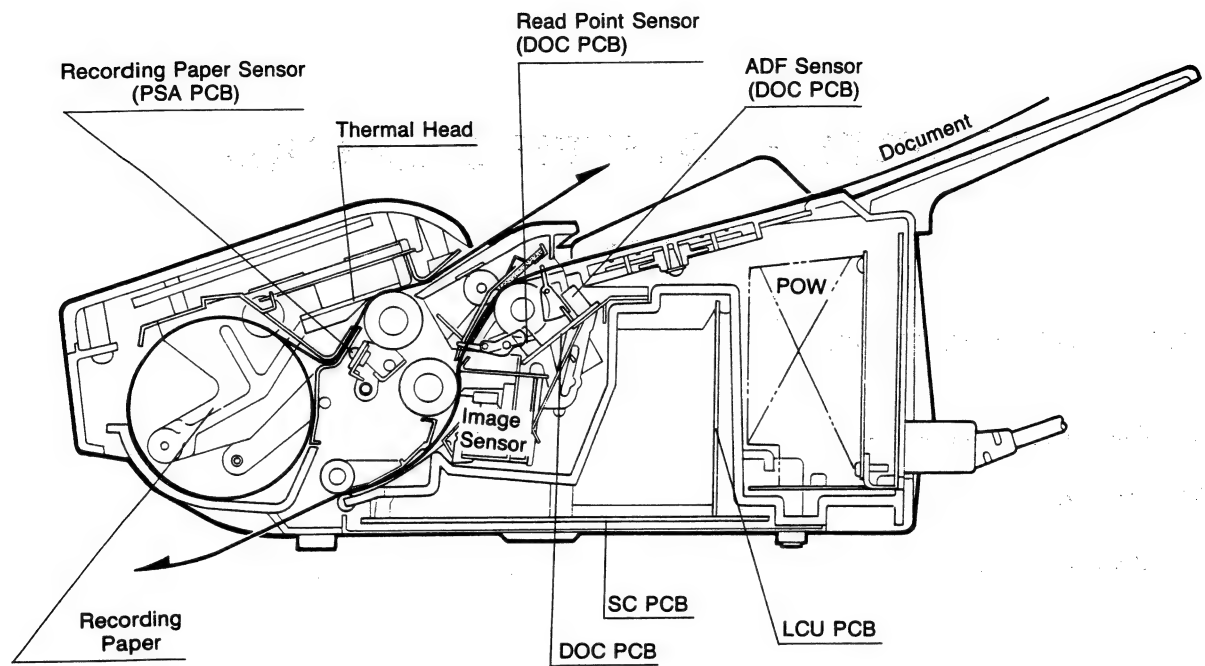
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CHAPTER 5 SYSTEM OPERATION

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5.3 Signaling Scheme	5-3

CHAPTER 5 SYSTEM OPERATION

5.1 Transmission and Reception



Transmission

Reception

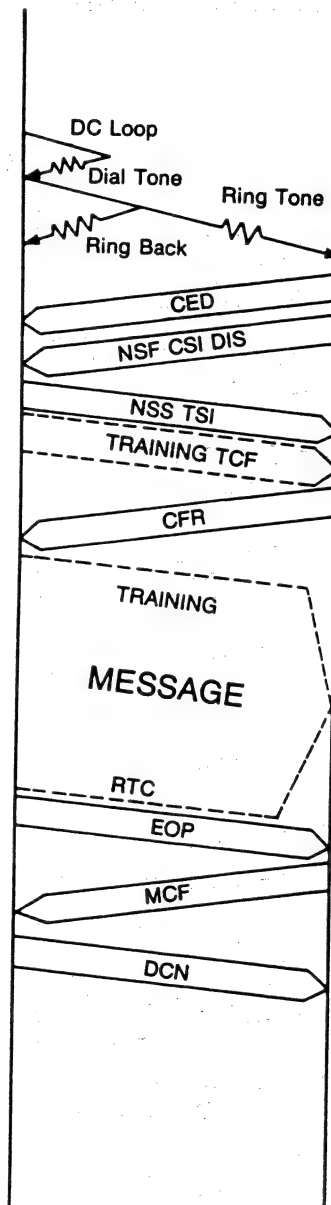
Mechanism Sequence

Signal Sequence

Mechanism Sequence

1. Document set
 - ADF sensor on
 - Reception waiting → transmission mode
- (Dial other party)
2. Document loading operation
 - Transmission motor (T/M) rotates forward
 - LED on
3. Document head detection
 - Transmission motor (T/M) stop
 - Document loading stop
4. Document reading operation
 - Transmission motor (T/M) on (Intermittent sending according to image information)
 - Reflection light from the document lit by LED is read by Contact Image Sensor and converted into image information photoelectrically.
 - Synchronization → MH/MR coding → Data buffer → P/S conversion → Modulation
5. Document end point detection

After document reaches the read position, transmission motor (T/M) is turned off.
6. Document ejection
 - Transmission motor (T/M) on and rotates forward quickly
7. Reception waiting state
 - Initial state



1. Ring in detection
(Line: phone → FAX)
2. Reception preparation
 - Pull recording paper back to the recording position part.
3. Reception printing operation
 - Reception motor (R/M) on
 - Turnaround intermittent transmission
 - Signal is sent from LCU → SC (Demodulation, Decoding, Picture information reproduction) → thermal head
4. Recording paper ejection
5. Reception waiting state
 - Initial state

□ 300 bps

▭ 9600/7200/4800/2400 bps

Note 1 During continuous transmission

- Document is fed and ejected simultaneously.
- Operations from 1. to 8. are repeated.

5.2 Copying

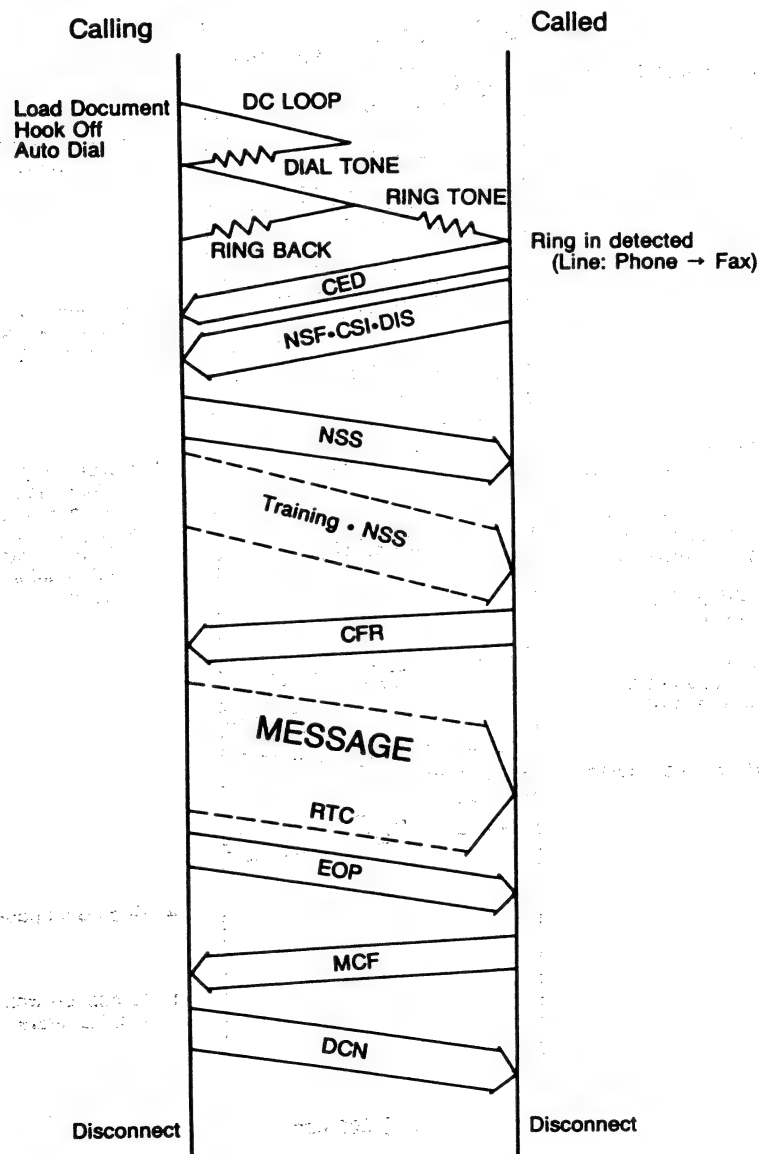
The copy operation is performed by activating both transmitting and receiving mechanisms.

5.3 Signaling Scheme

The signaling scheme and the communication procedure of this machine conform to the CCITT Recommendation T30.

Representative signaling scheme for G3 mode is shown in Page 5-3. In addition, our particular signaling scheme called Short Protocol which is based on CCITT Recommendation T30 is shown in Page 5-4.

Short Protocol



300 bps

9600/7200/4800/2400 bps

Chapter 6 HARDWARE DESCRIPTION

CHAPTER 6 HARDWARE DESCRIPTION

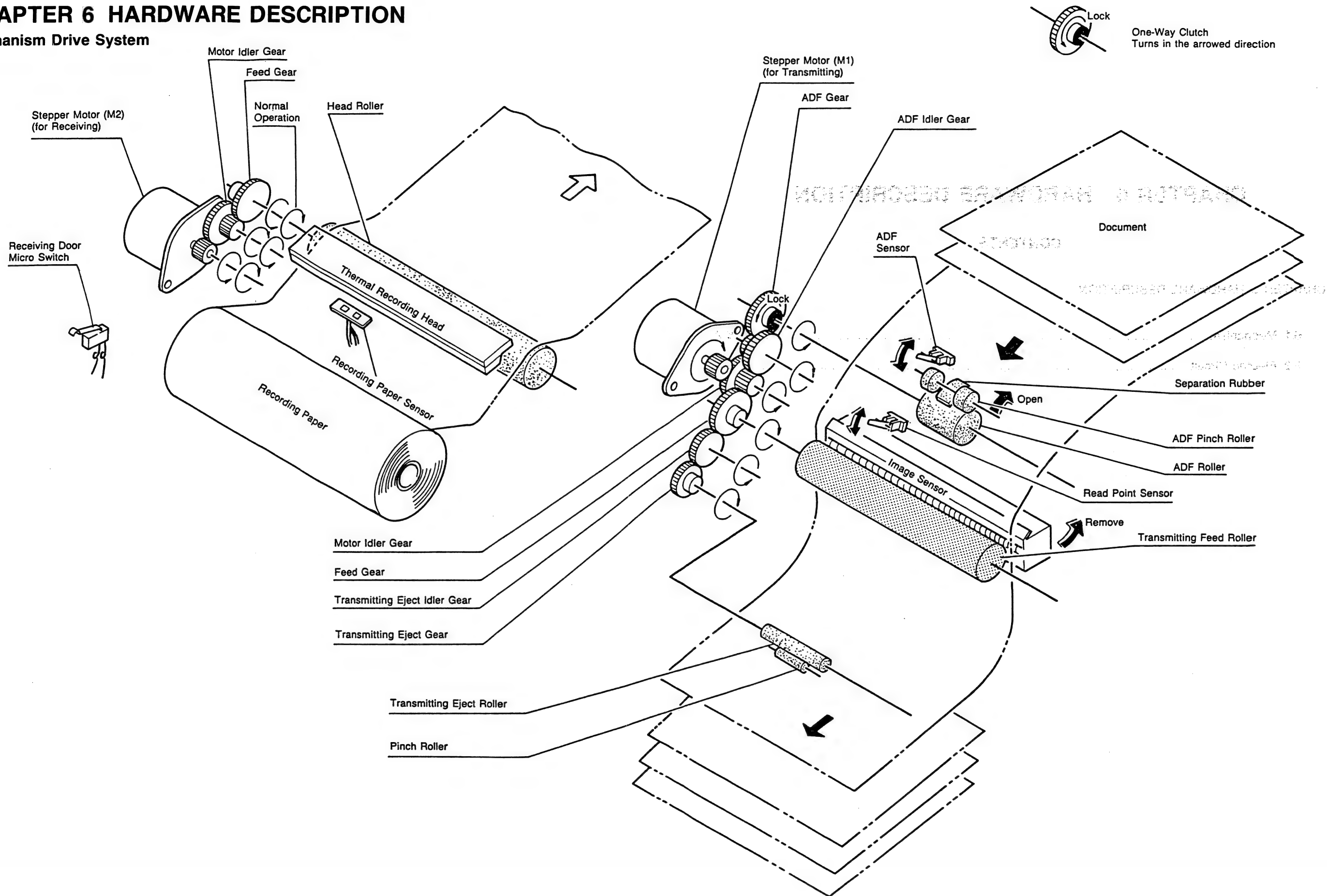
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CHAPTER 6 HARDWARE DESCRIPTION

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CHAPTER 6 HARDWARE DESCRIPTION

Mechanism Drive System



(4) Recording paper sensor

The recording paper sensor is monitoring whether the recording paper runs out or not.

6.1.1.3 Other Mechanical Parts

(1) Receiving door micro switch

When the receiving door micro switch detects that the receiving unit is open, the unit stops all functions as a facsimile. The control panel will not accept entry keys until the receiving unit is closed.

6.1.1.4 Covers and Enclosure

(1) Cover unit

The cover unit encloses and protects the entire unit.

(2) Receiving block cover

The receiving block cover encloses the control panel and receiving mechanism.

(3) Upper cover

The upper cover holds document and has a guide plate which determines the document width.

(4) Rear panel

The rear panel is connected to the power supply unit which includes AC inlet, fuse, line cord and power switch.

(5) Bottom plate

To check SC PCB and LCU PCB, the bottom plate should be removed.

6.1.2 Control Panel

The unit is operated with the control panel. The control panel is equipped with LCD display which shows the machine status and entry keys.

6.1 Mechanism

6.1.1 Mechanical Construction

The mechanical units are compactly installed in the single body unit. The mechanical block consists of the four parts given below.

- (1) Transmitting mechanism
- (2) Receiving mechanism
- (3) Other mechanical parts
- (4) Covers and enclosure

6.1.1.1 Transmitting Mechanism

The transmitting mechanism consists of components which feed, scan, eject documents and send signals.

- (1) ADF mechanism
The document set on the ADF is fed into the unit automatically.
 - (a) ADF roller
The ADF roller feeds the document from the ADF to the reading point after the ADF sensor detects a document.
 - (b) Separation rubber
The separation rubber prevents document from being fed more than 2 sheets at the same time.
- (2) Image sensor
Image sensor unit consists of contact image sensor, LED light source, convergent light fiber block, sensor driving circuit, and metal frame. Optical block and electric circuit are adjusted at the factory. Binary coded process and Dither process are controlled by the mode select signal.
- (3) Driving system of transmitting mechanism
The driving system of transmitting mechanism, which consists of a stepper motor, rollers, and gears, feeds the document.
 - (a) Transmitting stepper motor (M1)
The transmitting stepper motor rotates the transmitting feed roller intermittently according to the picture information.
The motor also rotates the ADF roller and the transmitting eject roller.
 - (b) Transmitting feed roller
The transmitting feed roller feeds the document.
 - (c) Transmitting eject roller
The transmitting eject roller ejects the transmitted document.
- (4) Transmitting mechanism sensors
 - (a) ADF sensor
The ADF sensor is monitoring whether a document is set on the ADF tray or not.
 - (b) Read point sensor
The read point sensor detects the head and end of the document sheet so that the unit controls the start/stop timing of reading.

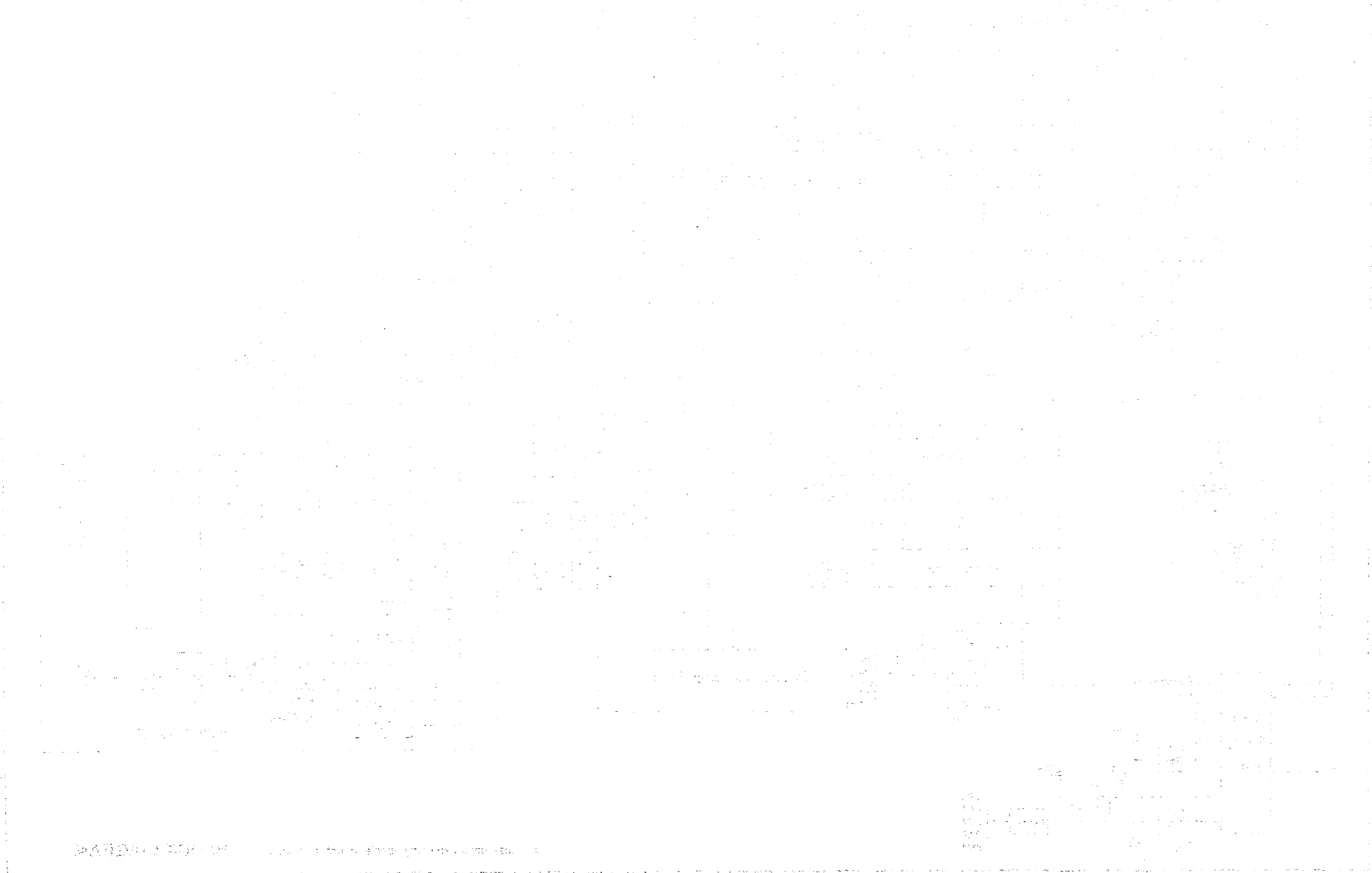
6.1.1.2 Receiving Mechanism

The receiving mechanism mainly consists of thermal head unit, recording paper driving system, recording paper sensor and head roller.

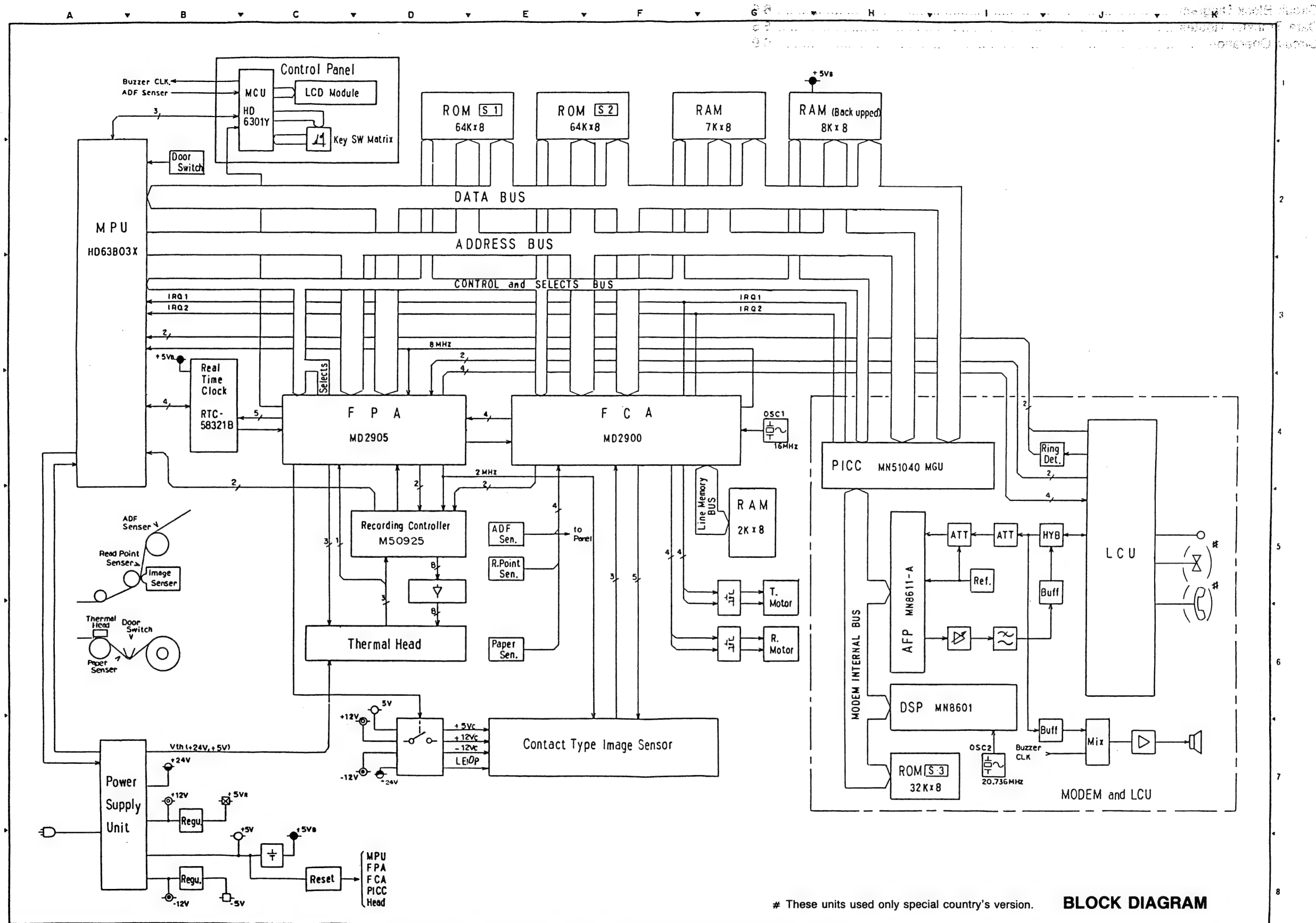
- (1) Thermal head unit
The thermal head unit consists of a thermal head and bracket which fixes the heat element in the right place.
- (2) Head roller
The head plate springs press the thermal head against the head roller. The contact between recording paper and the thermal head is kept constant in distance.
- (3) Driving system for receiving mechanism
The driving system for receiving mechanism, which consists of a stepper motor (M2), gears and the head roller, feeds the recording paper.

6.2 Electric Circuit

6.2.1 Circuit Block Diagram 6-5
6.2.2 Data Transfer Routes 6-6
6.2.3 Circuit Operation 6-9

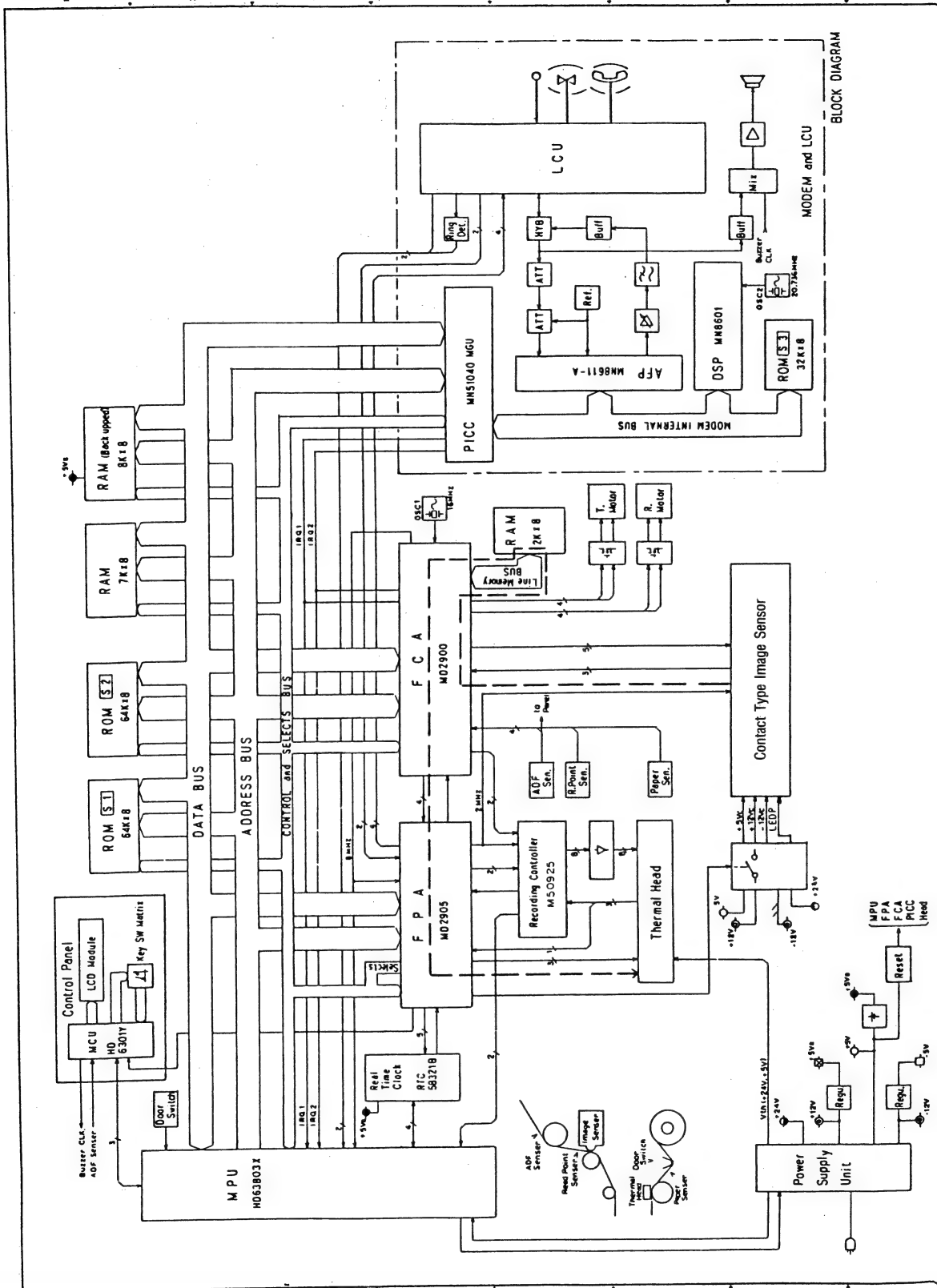


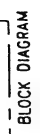
6.2.1 Circuit Block Diagram



6.2.2 Data Transfer Routes

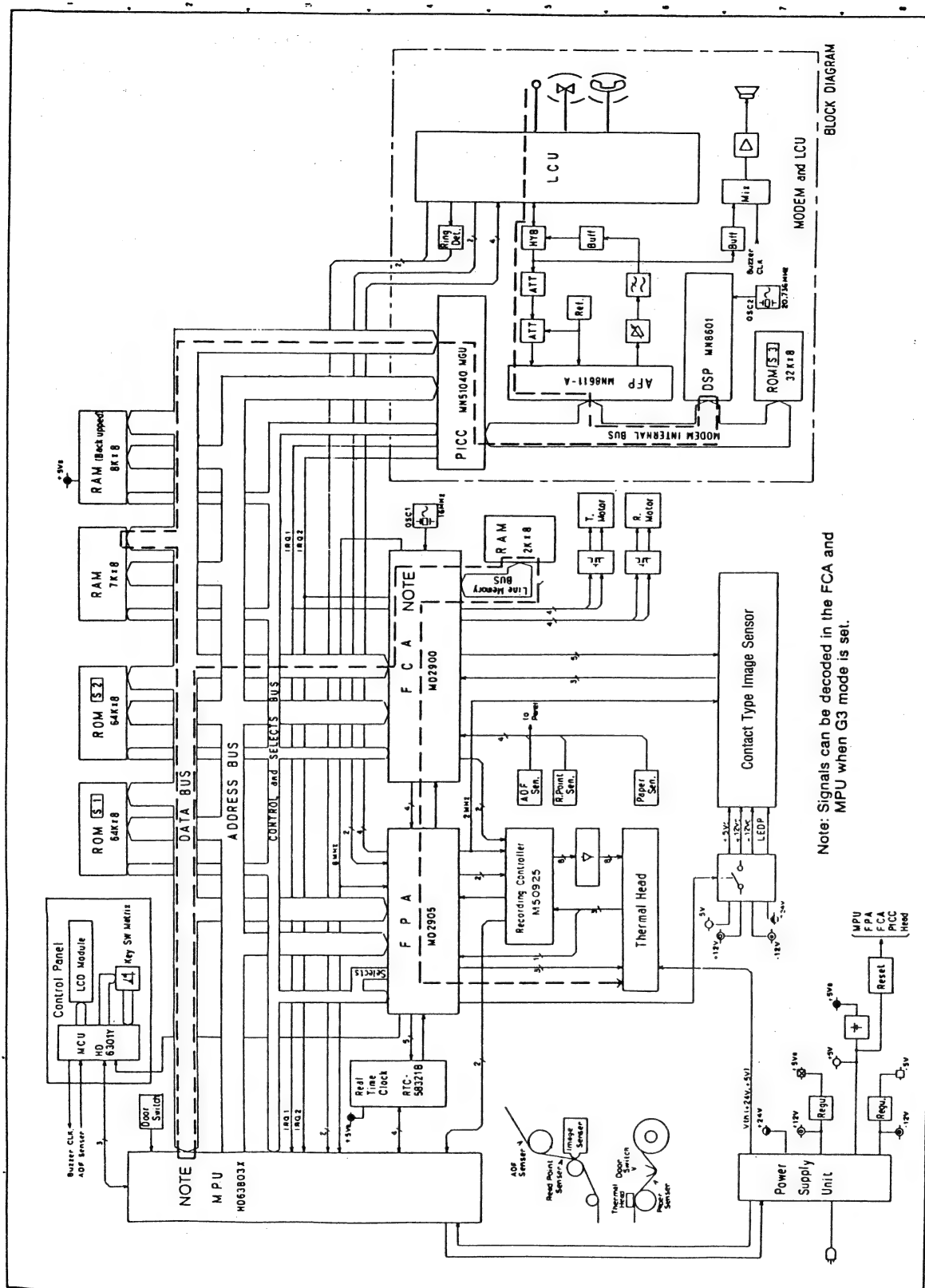
(1) Copy Mode





Note: Signals can be encoded in the FCA and MPU when G3 mode is set.

(3) Receiving Mode



6.2.3 Circuit Operation

6.2.3.1 SC PCB

1. MPU Circuit

This unit is controlled by the MPU (IC24: Micro Processing Unit: HD63B03X).

This MPU is based on the CPU which has upper compatible mnemonic command with MC6800. In addition, the MPU, which is one-chip microcomputer, includes many functions such as internal RAM, programmable timer, serial communication interface, parallel I/O port and so on. The clock frequency is 2 MHz.

The MPU block diagram and system bus timing are shown in Figures 6.1 and 6.2.

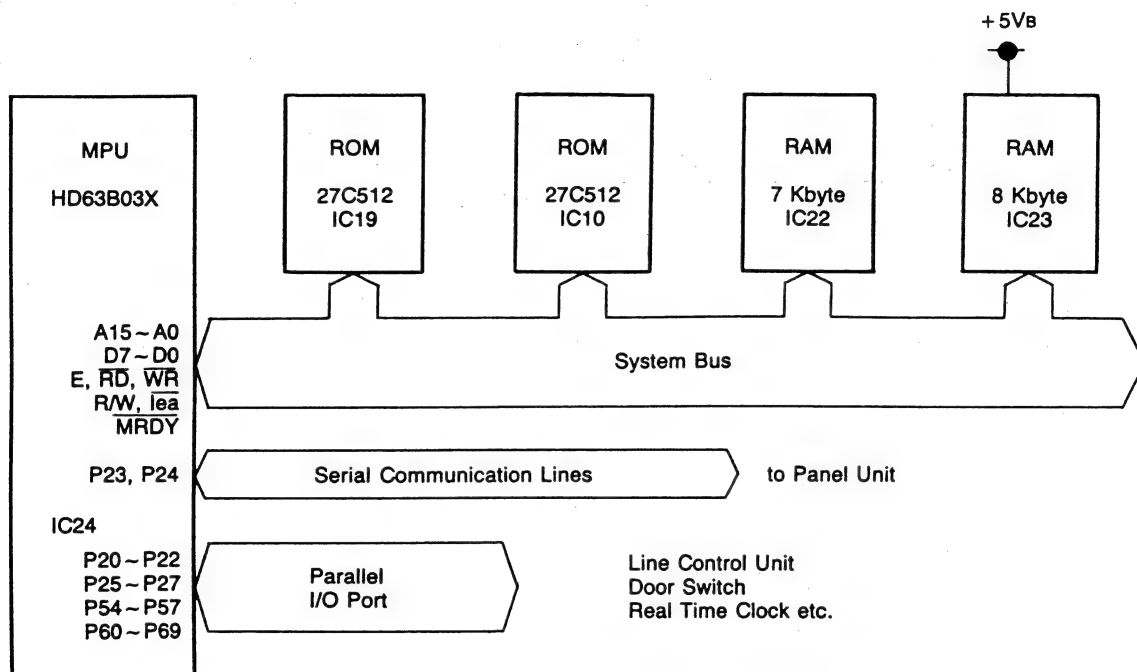


Figure 6.1 MPU Block Diagram

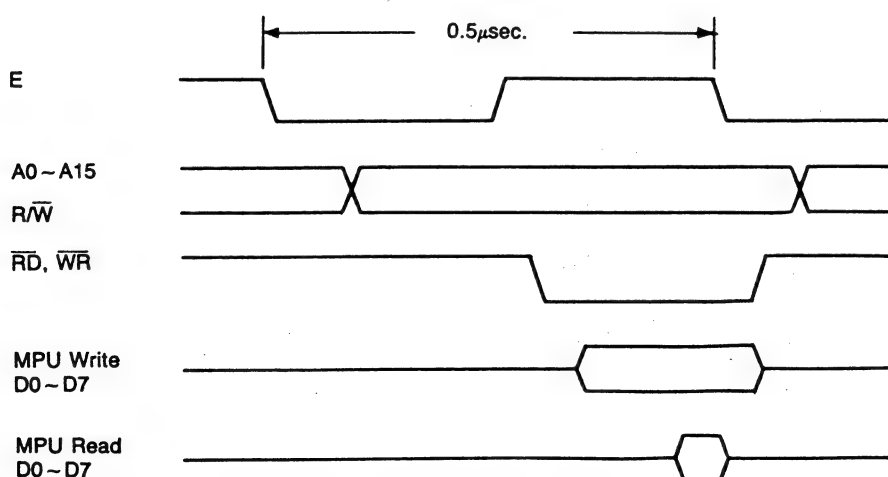


Figure 6.2 System Bus Timing

(1) ROM

Main program is stored in two pieces of the EPROM (IC19 and IC10). Each EPROM has 64 Kbyte memory capacity. The memory address maps of CPU and ROM are shown in Figures 6.3, 6.4 and 6.5.

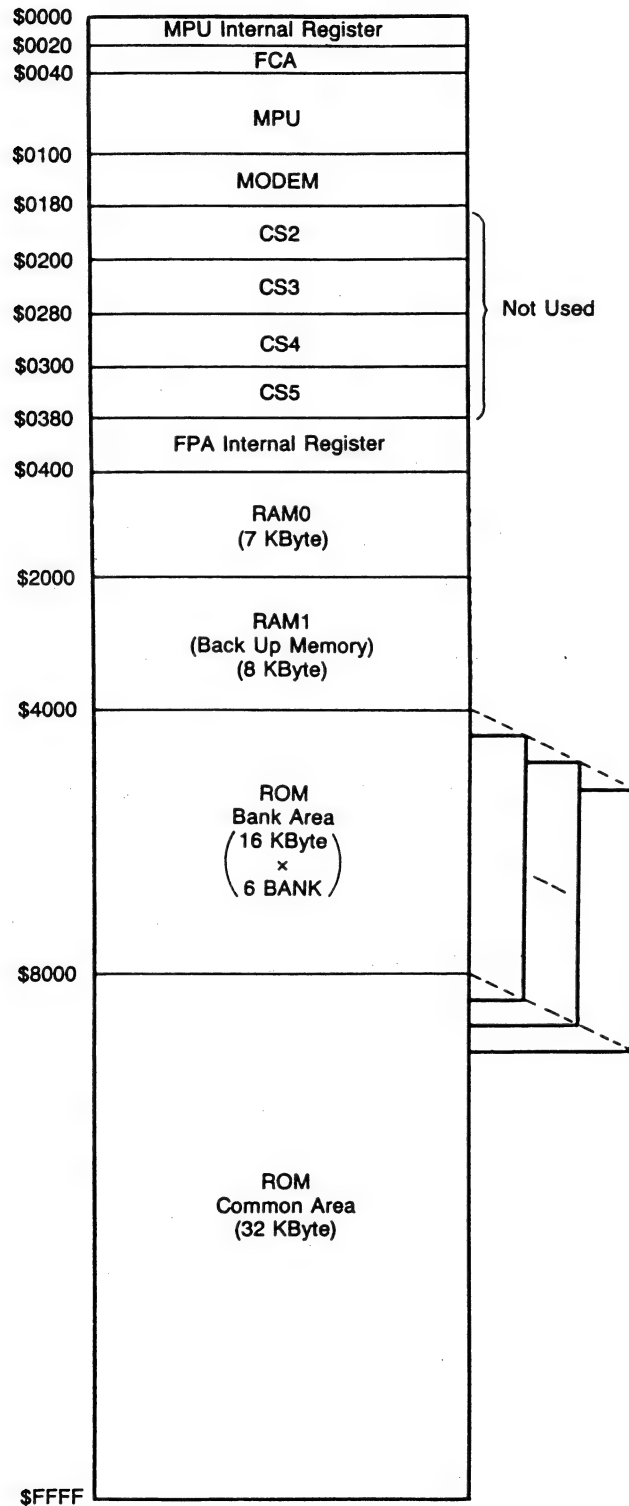


Figure 6.3 Memory Map

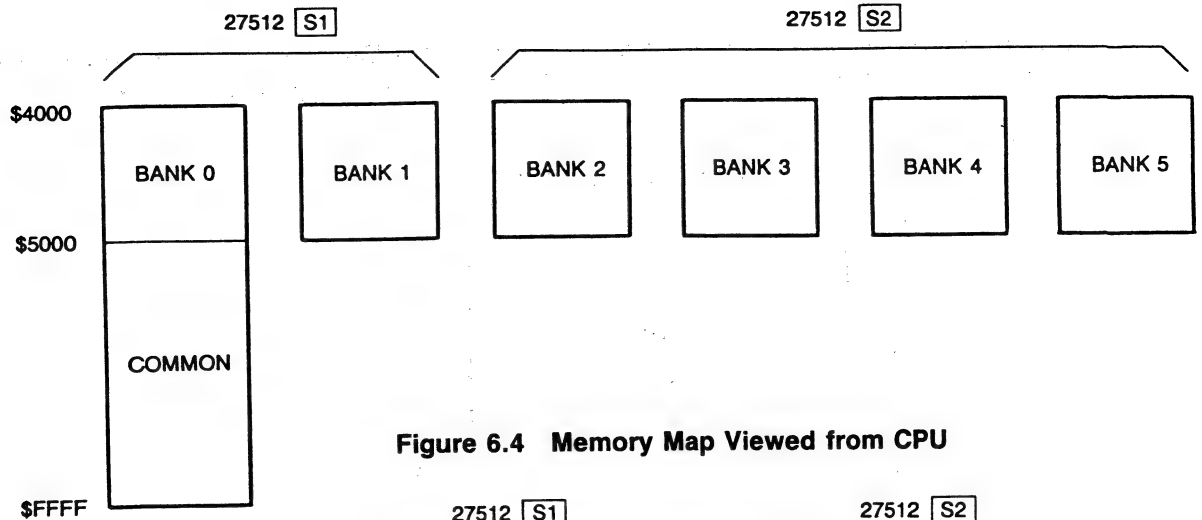


Figure 6.4 Memory Map Viewed from CPU

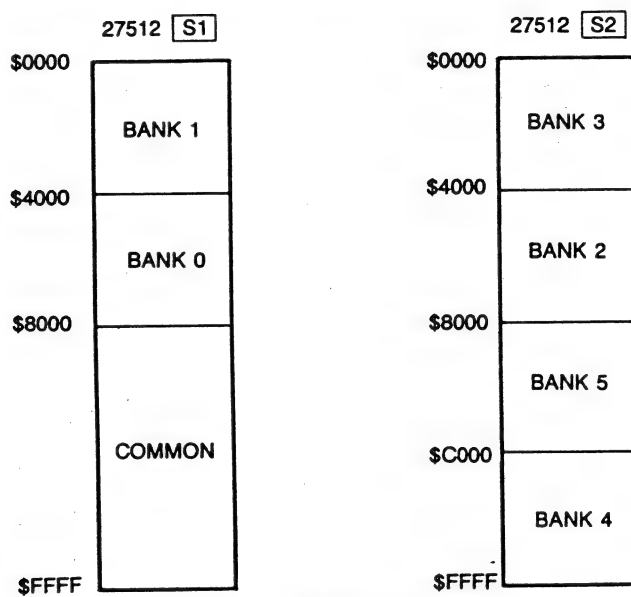


Figure 6.5 ROM Address Map

(2) RAM

The system RAM consists of 192 byte internal RAM in the MPU and two 8 Kbyte external RAMs (IC22 and IC23). The RAM (IC23) is backed up by the built-in nickel-cadmium battery.

(3) Parallel I/O Port

The parallel I/O port consists of 24 bits. The interrupt request, memory ready and serial interface are also connected with the I/O port. Therefore 18 bits are left for the parallel I/O port which are connected with the ring in signal from LCU, heat detecting signal, the door switch line, bank charging control line and data bus for real time clock and other blocks.

(4) Serial Communication Interface

The MPU is hand-shaking with the MCU mounted on the control panel (Micro Control Unit: HD6301Y) through internal serial communication interface. The data transmission mode is asynchronous and the data formation is shown in Figure 6.6.

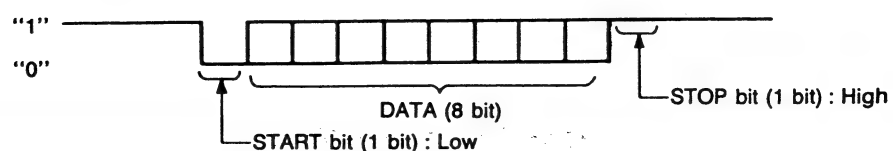


Figure 6.6 Serial Communication Format

2. FPA Circuit (Facsimile Peripheral Adapter: MD2905)

The FPA is one-chip semicustom LSI (gate array) which consists of address decoding block, I/O port block, and a part of recording control block.

The FPA block diagram is shown in Figure 6.7.

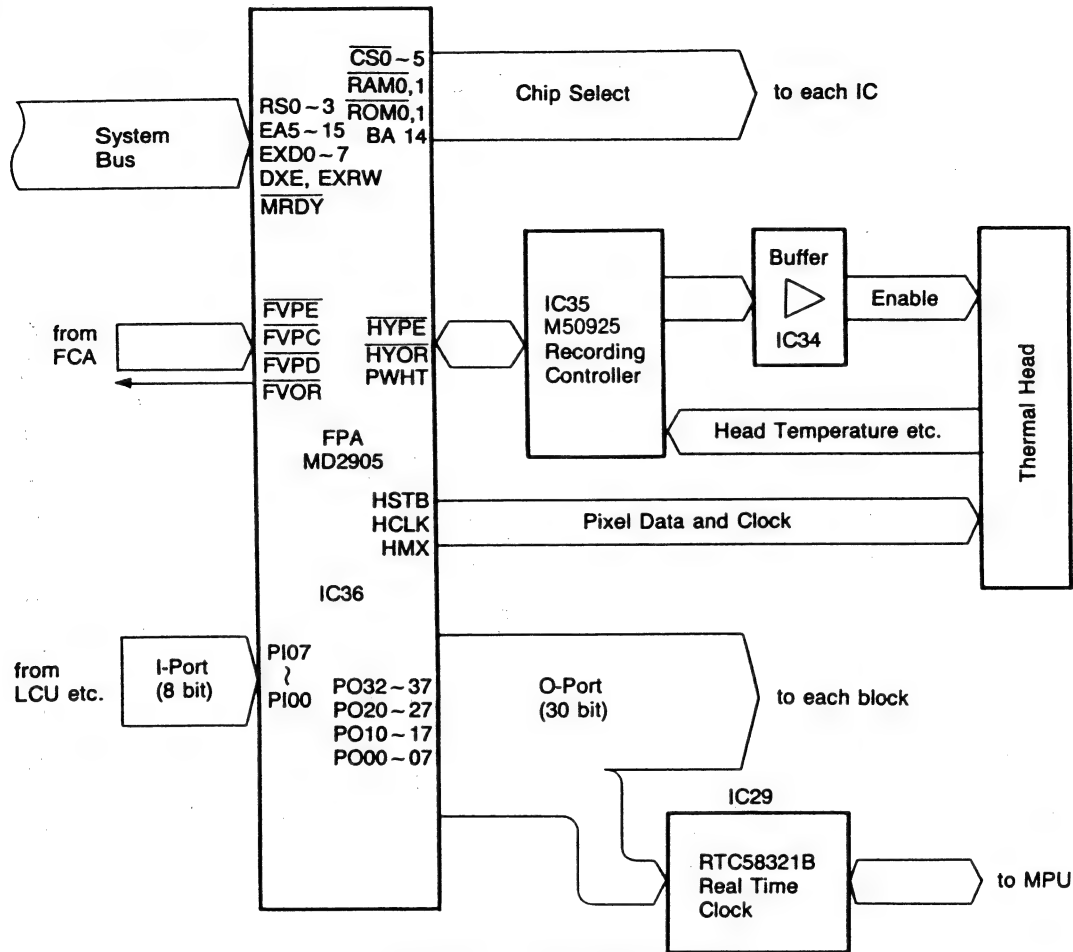


Figure 6.7 FPA Block Diagram

(1) Address Decode Block

The address decode block generates the chip selecting signal to access the external extension ROMs.

(2) Parallel I/O Port Block

The FPA includes 8 bit I-port and 24 bit O-port.

(3) Real Time Clock (RTC 58321B)

The RTC (Real Time Clock) is the IC working as a clock and a calendar which is equipped with the crystal oscillator. The RTC is controlled through O-port in FPA. The 4 bit data is transmitted through the I/O port in the MPU when the read/write command is executed.

(4) Recording Control Block

The FPA and recording controller (M50725-5xxSP) execute the recording control of the receiving picture data by exchanging signals each other. The picture data is transmitted from the FCA to the FPA by serial transmission. After the easy process such as the detection of the all white, the FPA transmits the data to the thermal head block. The recording controller generates the thermal head enable signal considering the head temperature, receiving speed and so on. Therefore the recording contrast is always adjusted suitably. The recording controller itself monitors the temperature of the thermal head to prevent it from overheat. The thermal head is divided into 8 blocks, which are charged sequentially one after the other so that the power unit can avoid the overload.

The recording block interface timing and the thermal head control timing are shown in Figures 6.8 and 6.9.

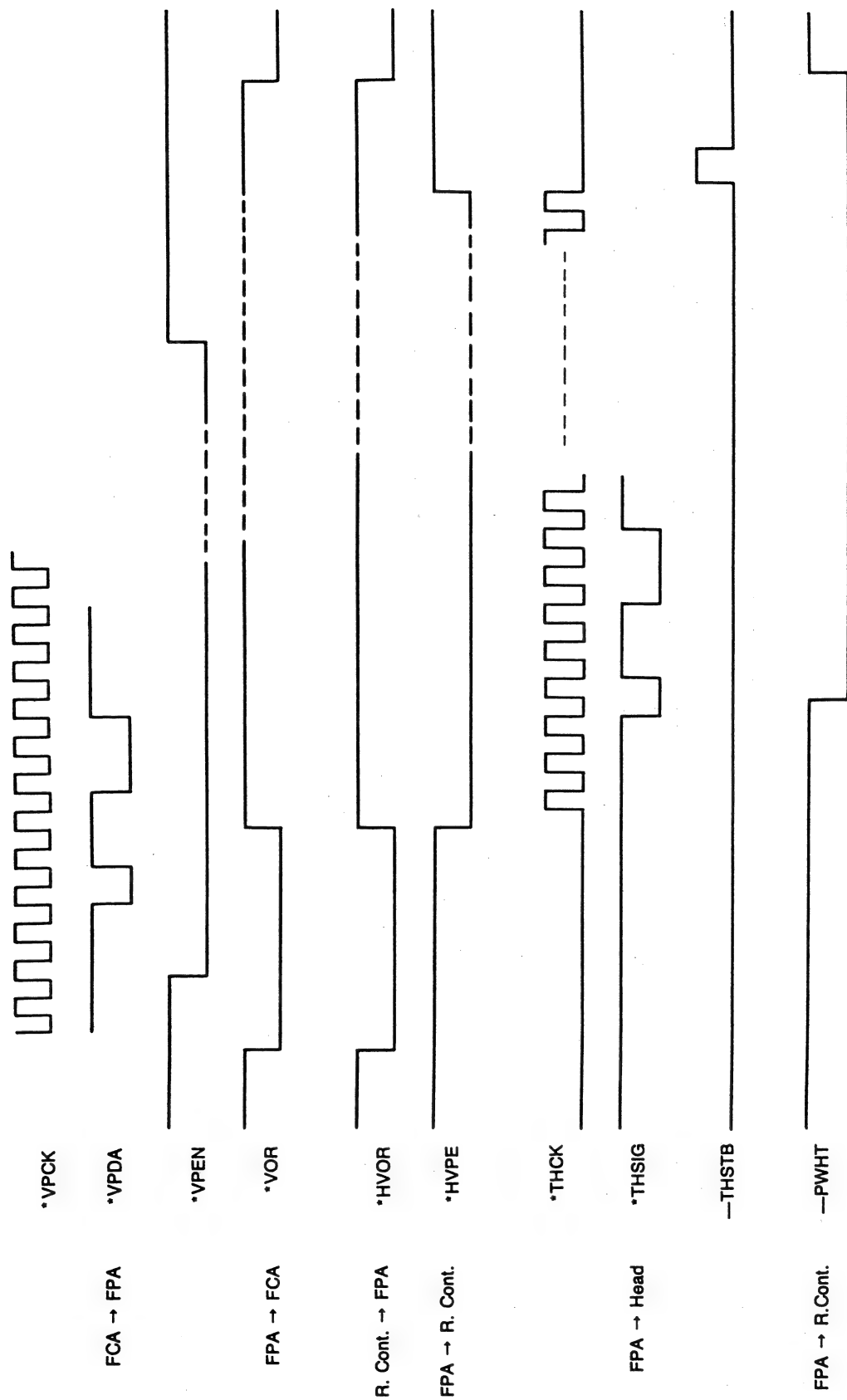


Figure 6.8 Recording Block Interface Timing Chart

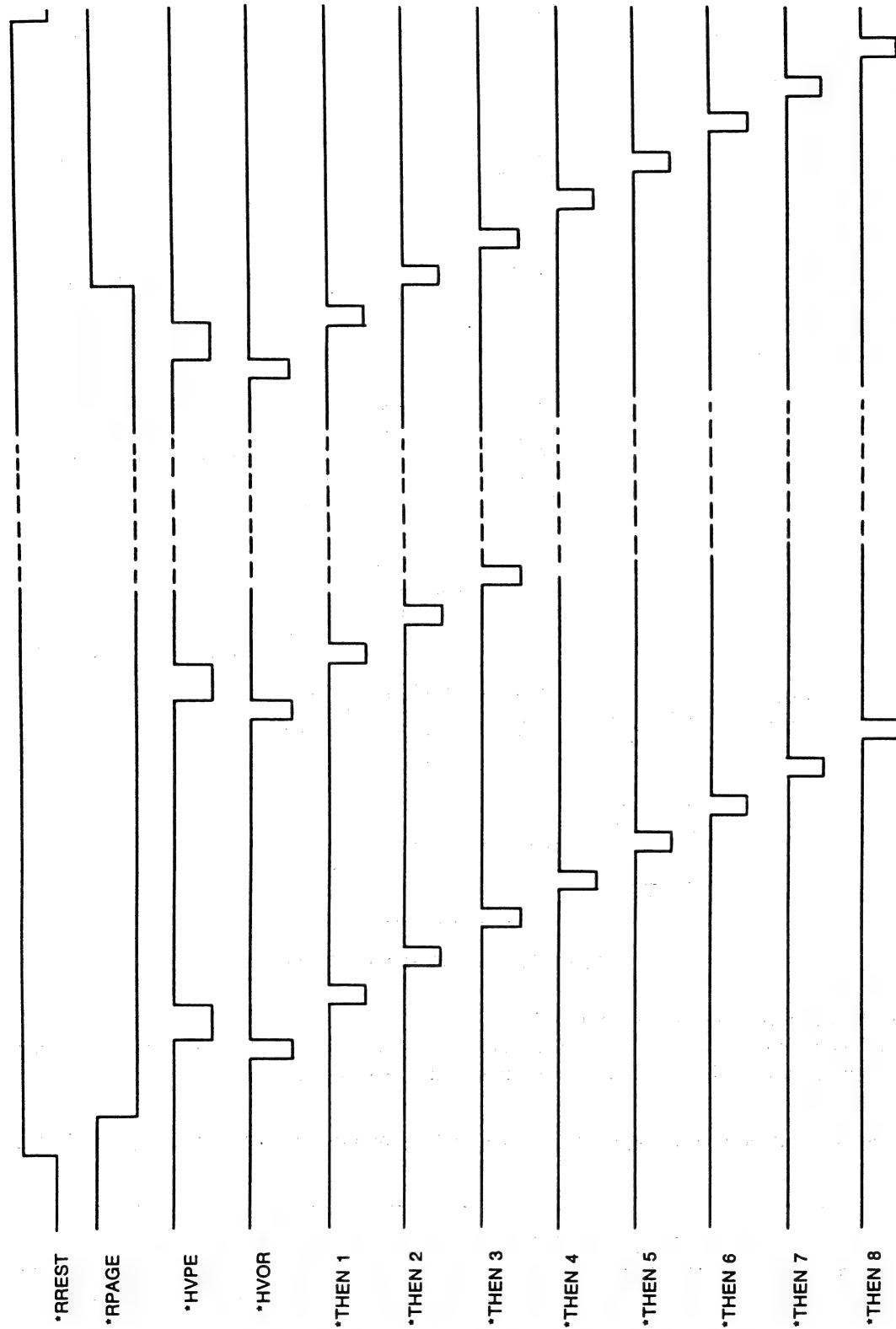


Figure 6.9 Thermal Head Control Timing Chart

3. FCA (Facsimile Control Adapter: MD2900)

The FCA is semi-custom LSI (gate array) which includes the primary functions as a facsimile.

The FCA block diagram is shown in Figure 6.10.

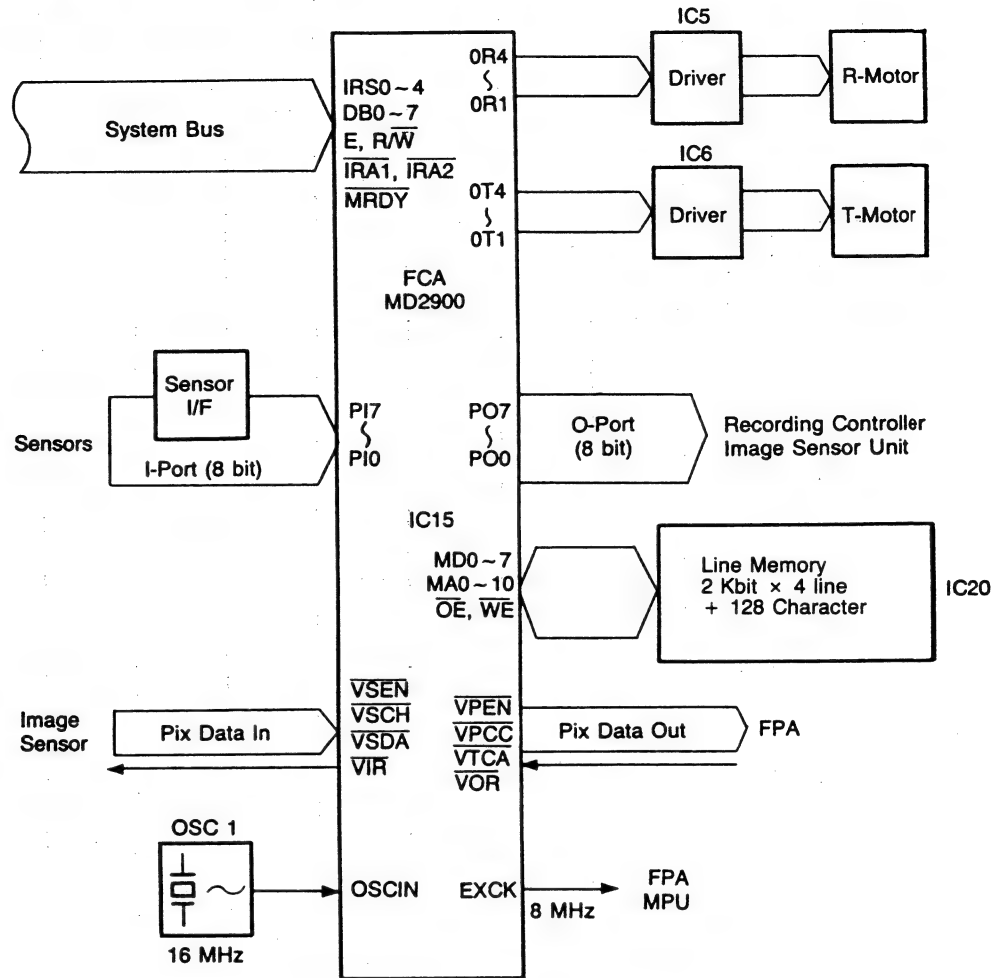


Figure 6.10 FCA Block Diagram

(1) Picture Data Interface and Line Memory Block

The FCA reads the picture data from the contact image sensor and writes it into the line memory in the transmission operation. The FCA also transmits the picture data to the thermal head block in the receiving operation.

The contact image sensor timing chart and the FPA timing chart are shown in Figures 6.11 and 6.12.

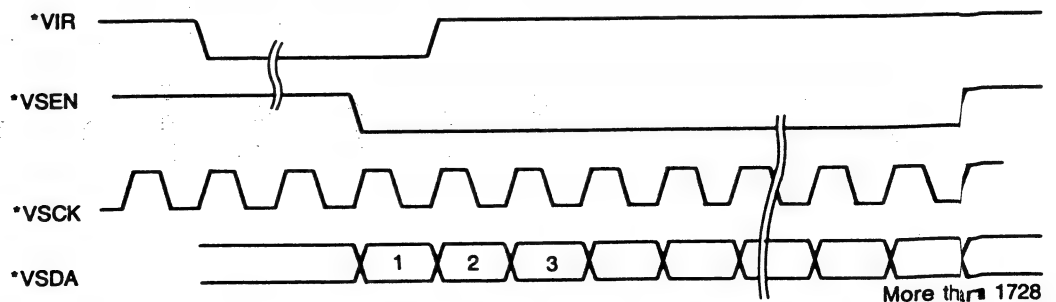


Figure 6.11 Contact Image Sensor Timing Chart

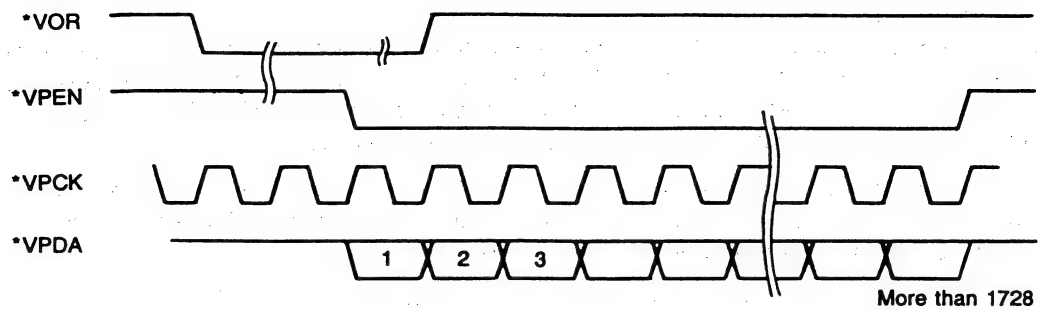


Figure 6.12 FPA Timing Chart

The line memory has 2 K byte memory capacity. The internal line memory constitution is shown in Figure 6.13.

a) —MS8K = 0

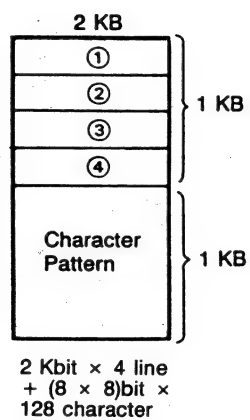


Figure 6.13 Internal Line Memory Construction

(2) Coding and Decoding

In the transmission operation, the FCA transmits the picture data from the contact image sensor to the line memory. The FCA scans the black/white threshold point in the line memory and converts the picture data into black/white threshold point data, which is transmitted to the MPU. The MPU converts the black/white threshold point data into the black/white binary coded data.

In the receiving operation, the MPU converts the black/white binary coded data into the black/white threshold point data, which is transmitted to the FCA. The FCA converts the black/white threshold data into the picture data, which is stored in the line memory.

The MPU executes the coding and decoding effectively taking this system. The coding and decoding process are shown in Figures 6.14 and 6.15.

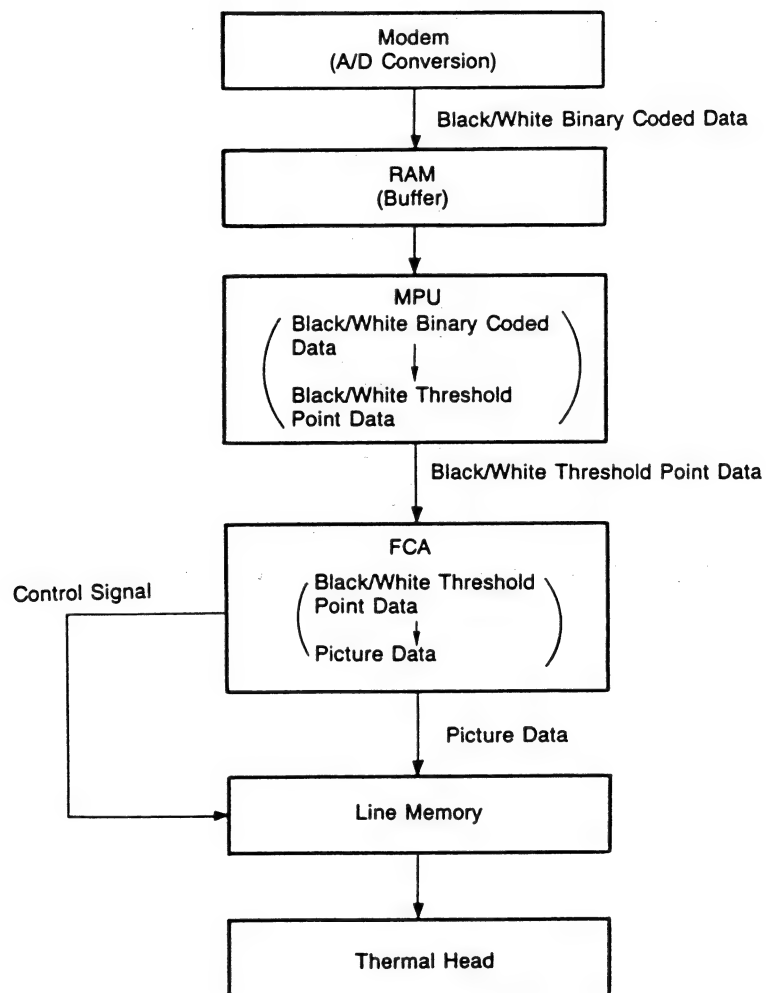


Figure 6.14 Decoding Process

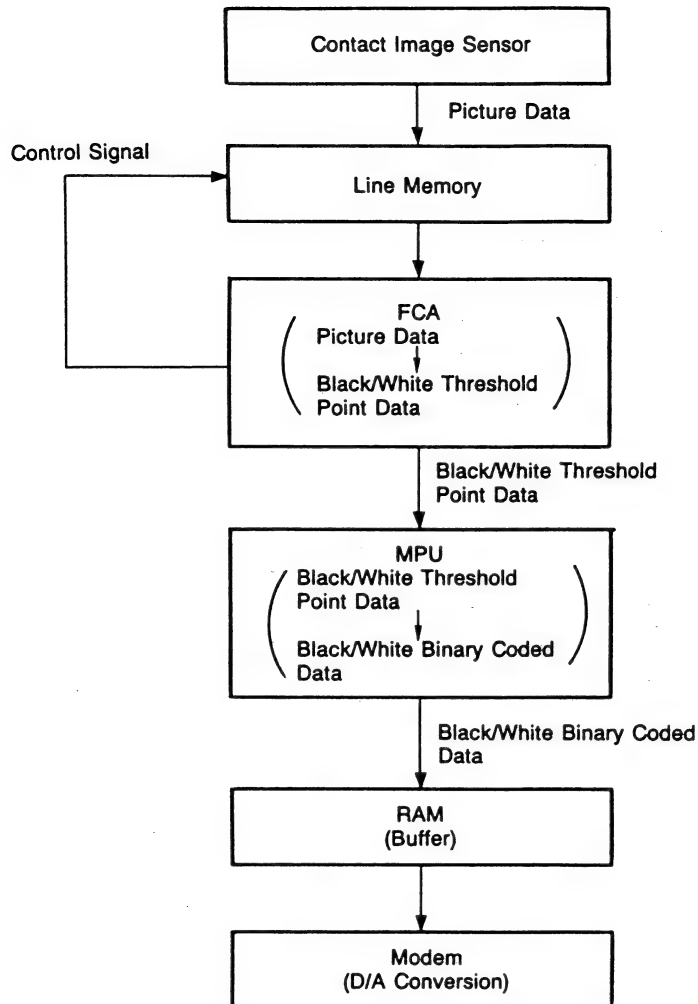


Figure 6.15 Coding Process

(3) Stepping Motor Control Block

The FCA controls the 4 phase stepping motor. The 1-2 phase driving method is taken to actuate the motor. The power MOS FET array is adopted as the motor driver (IC5 and IC6) which enhance the torque of the motor and reduces the heat issued from the motor.

(4) Parallel I/O Port

The FCA includes 8 bit I-port and 8 bit O-port. The I-port mainly accepts the signals from sensors. The output signal from the recording paper sensor to the FCA includes sub-micro ampere order current, so it needs to be converted into the logical voltage level at the transistor Q1 and Q6. The O-port is mainly used for output signals to control the contact image sensor and the recording controller.

4. Modem Block

This modem circuit consists of three LSIs (MN51040MGU, MN8611A and MN8601).

MN51040MGU : Works as the interface to the MPU.

MN8611A : Processes the input signal from the line.

MN8601 : Processes the digital signal.

The modem block diagram is shown in Figure 6.16.

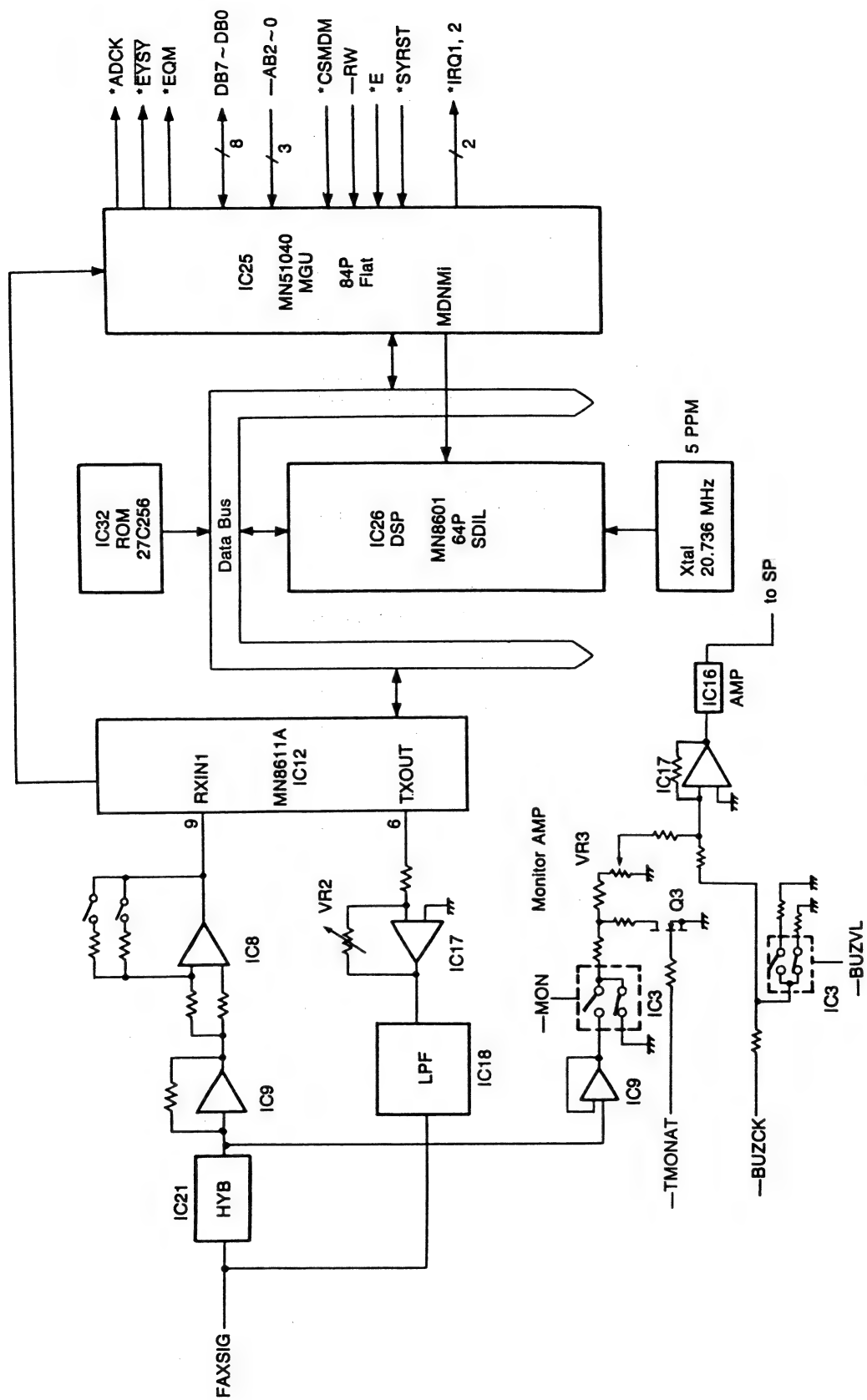


Figure 6.16 Modem Block Diagram

(1) MN51040MGU

The interface mainly consists of the data bus (DB7-DB0), address bus (AB2-AB0) and control bus (*MSMDM, -RW and *E). Its timing chart is shown in Figure 6.17.

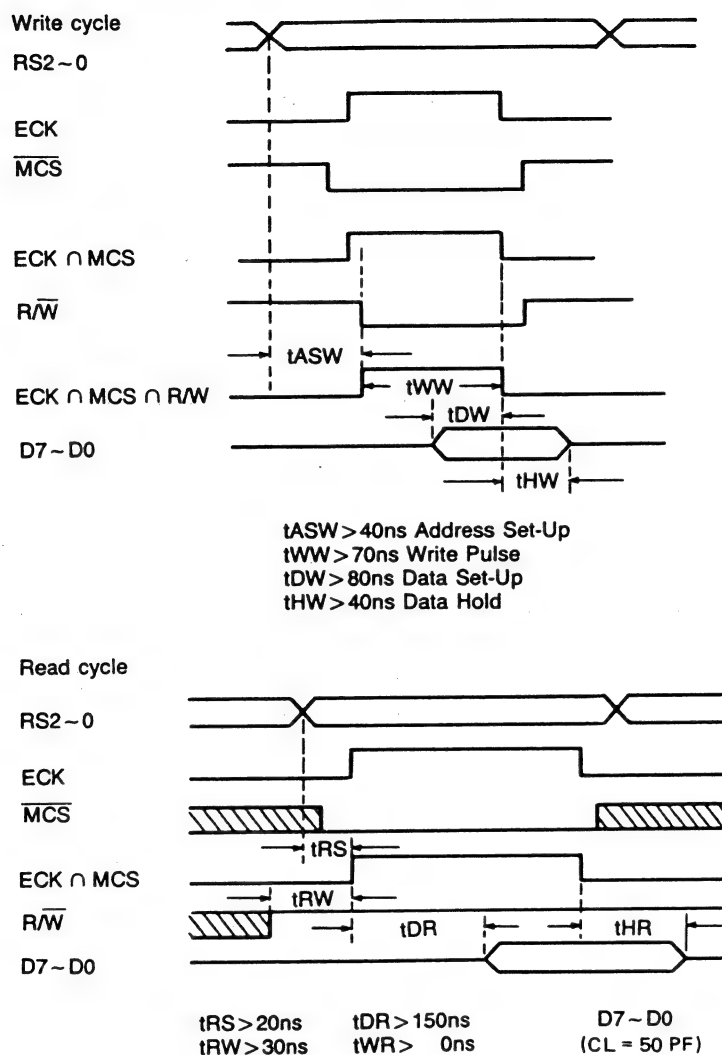


Figure 6.17 Timing Chart

(2) MN8601

The MN8601 is the DSP (Digital Signal Processor) which has the high-speeded multiplication function and it also works as a CPU by fetching the command from the external ROM through the 8 bit data bus.

The signal MDNMI* in the MN51040MGU is connected with the non-maskable interrupt request in the MN8601. When the write command is executed in the MCU (MN8601), the signal -RW connected with the MN51040MGU is turned into the low level. The writing operation makes the signal MDNMI* turn from the high level into the low level. The change triggers the interrupt request, which makes the program start in the MN8601.

In the initializing operation, the MN8601 reads the operation mode data in MN51040MGU internal register written into from the MPU (HD63B03X) and writes the data into the registers in the MN51040MGU to define the dividing ratio of each clock.

In the transmitting operation, the MN8601 writes the transmitting data into the parallel I/O port (8 bit) in the MN8611A every 1/9600 sec. Then the 8 bit data is D/A-converted in the MN8611A and output as serial data. In the receiving operation, the serial data latched in the MN8611A is A/D-converted and transmitted to the MN51040MGU, then the data is converted into the 8 bit parallel data, which is read and checked by the MN8601.

The internal bus timing chart is shown in Figure 6.18.

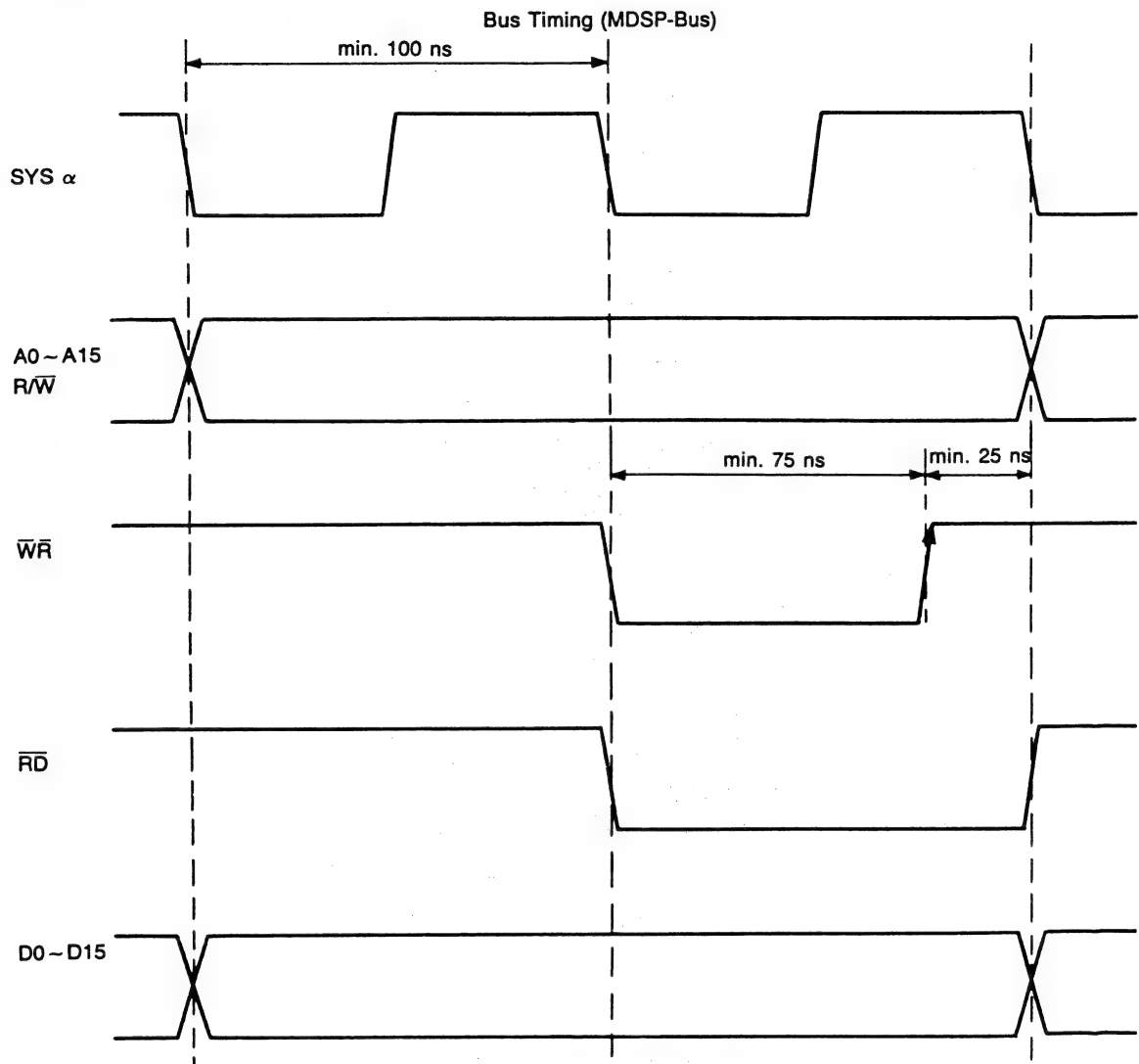


Figure 6.18 Bus Timing Chart

(3) MN8611A Peripheral Circuit

1) Receiving operation

The received signal is transmitted to the attenuator (IC9) through the LCU PCB and the hybrid circuit on the SC PCB (IC21). The attenuator (IC9) adjusts the received signal for the Modem level. The IC8 is the circuit to avoid the clamp in the MN8611A. The signal is amplified by the ratio 10 Kohm : 43 Kohm or attenuated by the ratio 10 Kohm : 6.8 Kohm according to the volume of the received signal level. Then the signal is transmitted to the RXIN1 in the MN8611A, where it is A/D-converted after getting through the filters and the AGC circuit.

2) Transmitting operation

The signal is output from the TXOUT in the MN8611A with forming the oscillating wave around the 2.5 V center. The signal is transmitting to the line through the gain adjustment circuit (IC17), the LPF circuit (IC18), the hybrid circuit (IC2) and the LCU PCB. The LPF (IC18) omits the frequency band which does not apply to the frequency for the line signal.

3) Monitor Amplifier

The monitor amplifier which consists of the IC9, IC3, IC17, IC16 and their peripheral circuits enables to monitor the dial tone, busy tone, DTMF tone, ring back tone, an answer from the called unit, buzzer and so on. The volume of the buzzer is controlled by the IC3 and its peripheral circuit. The transistor Q3 is used to turn the monitor on and off and attenuate the input to the speaker amplifier during the signal is being transmitted.

5. Battery Charging Circuit

The unit is equipped with the nickel-cadmium battery (BT1: 3-51FT-SW) to back up the SRAM and the time clock. The S1 must be switched on when the unit is installed. When the power (5 V) is on, the BT1 is charged through the R217. When the power is off, the BT1 backs up the SRAM through the R217. The back up voltage is approximately 3.6 V. When the main power is off and left as it is, the battery is not to back up the SRAM and the time clock more than 10 days. In this case the unit can not ensure the RAM data. After 100% discharging, it takes about a day (25 hours) to charge the battery full again.

The back up battery circuit diagram, the equivalent circuit diagram at charged and discharged are shown in Figures 6.19, 6.20 and 6.21.

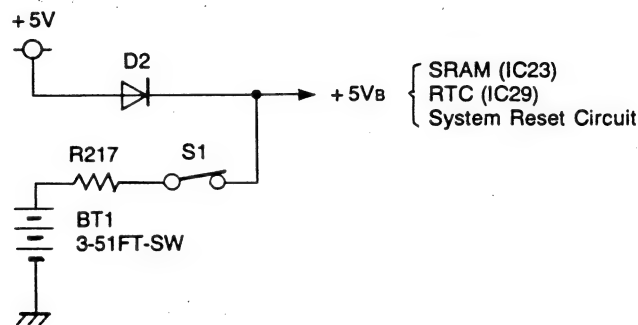


Figure 6.19 Electric Circuit Diagram of Battery Charging

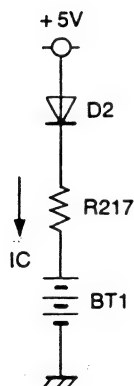


Figure 6.20 Equivalent Electric Circuit Diagram When Charged

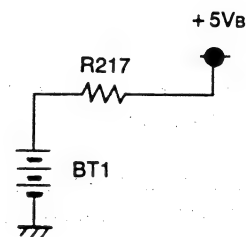


Figure 6.21 Equivalent Electric Diagram When Discharged

6. System Reset Circuit

The system reset circuit consists of the power voltage detecting IC (M51953BFP) and the impedance converting circuit. The detecting voltage of the IC38 is 4.25 V and the delay time is approx. 1 sec.

The system reset circuit diagram and the reset timing are shown in Figures 6.22 and 6.23.

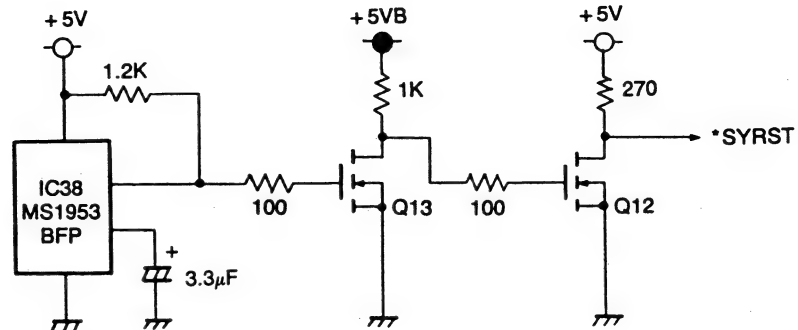


Figure 6.22 System Reset Circuit Diagram

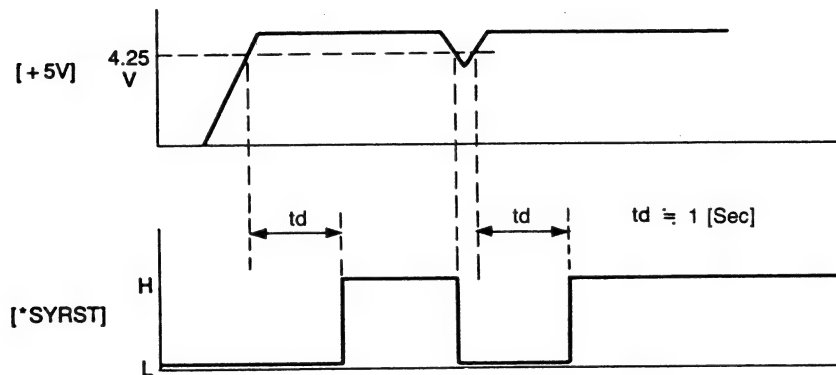


Figure 6.23 Reset Timing Chart

The output impedance converting circuit diagram, which enhances the reliability of the reset signal, is shown as Q13 and Q12 in Figure 6.22.

7. Power Circuit for Contact Image Sensor

The system program is designed to switch on the power line of the contact image sensor only when the unit is engaged in the transmission and making the copy so that the power consumption can be reduced.

The power circuit diagram for the contact image sensor is shown in Figure 6.24.

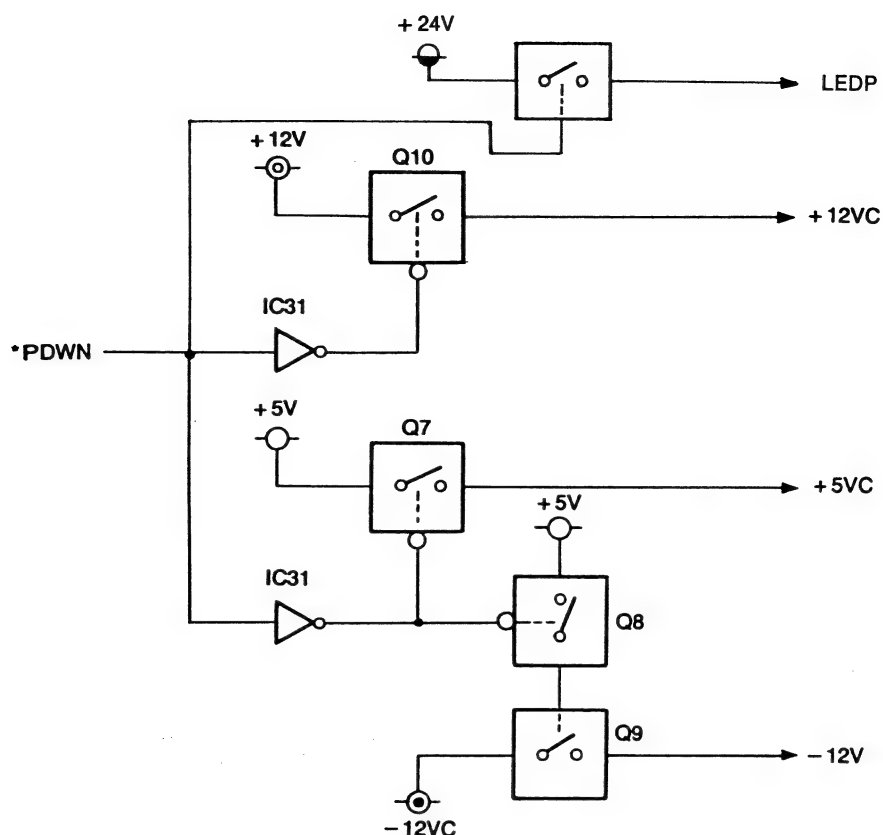


Figure 6.24 Power Circuit Diagram for Contact Image Sensor

8. The ± 5 V Power Circuit for Analogue Block

The three-terminal voltage regulators (IC13 and IC14) convert the voltage ± 12 V into $+5$ VR and -5 V for the analogue circuit. The $+5$ VR is selected and used when the $+5$ V is not available.

The ± 5 V power circuit diagram for analogue block is shown in Figure 6.25.

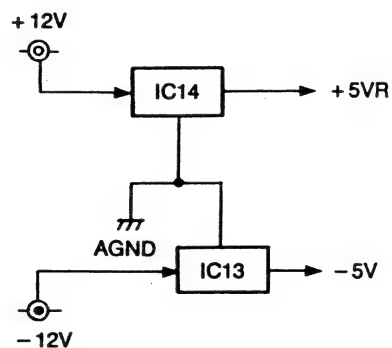


Figure 6.25 ± 5 V Power Circuit Diagram for Analogue Block

6.2.3.2 DOC PCB (DZYCA0302)

SEN1 (ADF Sensor) and SEN2 (Read Point Sensor) are the transparent type of photo-interrupters. The SEN1 detects if there is a document on the ADF and the SEN2 detects if there is a document at the reading point. When a document is put on the ADF, mechanical shutter is set to interrupt the transparent light, so the light doesn't reach SEN1 and current doesn't flow either. On the contrary, when a document is at the read point, mechanical shutter is moved out from the light path, so SEN2 catches the light and current flows.

These operations are shown in Figure 6.26, and the circuit diagram is shown in page 7-13.

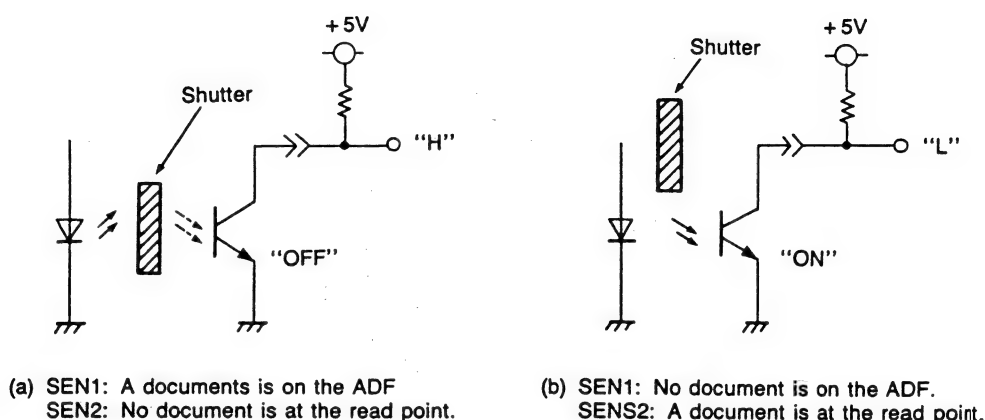


Figure 6.26 Operations

6.2.3.3 PSA PCB (DZYCAQ316)

SEN1 (Recording Paper Sensor) is a photo-reflector. When a recording paper is at the sensor position, the sensor detects the reflecting light from the document and the current starts flowing. When the SEN1 detects no recording paper at the sensor position, the current remains not to flow.

The SEN1 operation is shown in Figure 6.27, and the circuit diagram is shown in page 7-14.

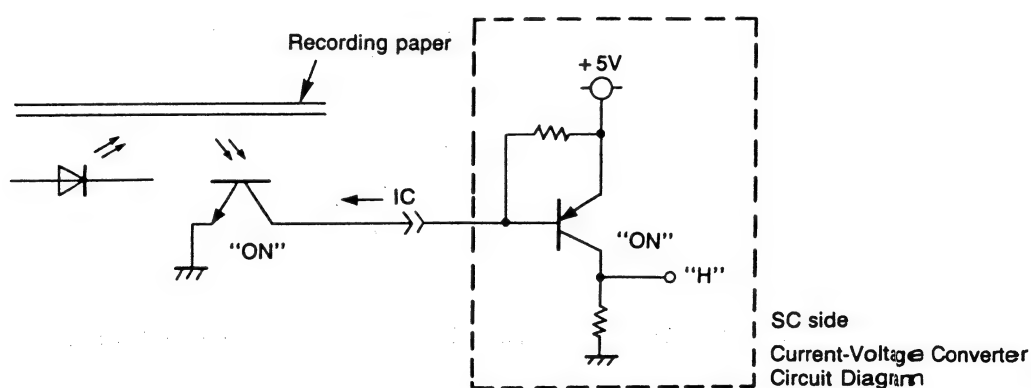


Figure 6.27 Operations

6.2.3.4 LCU PCB (DZYCA0304 or DZYCA0306)

The LCU circuit diagram is shown in page 7-10 ~ 7-12, Chapter 7.

The LCU block diagram is shown in Figure 6.28.

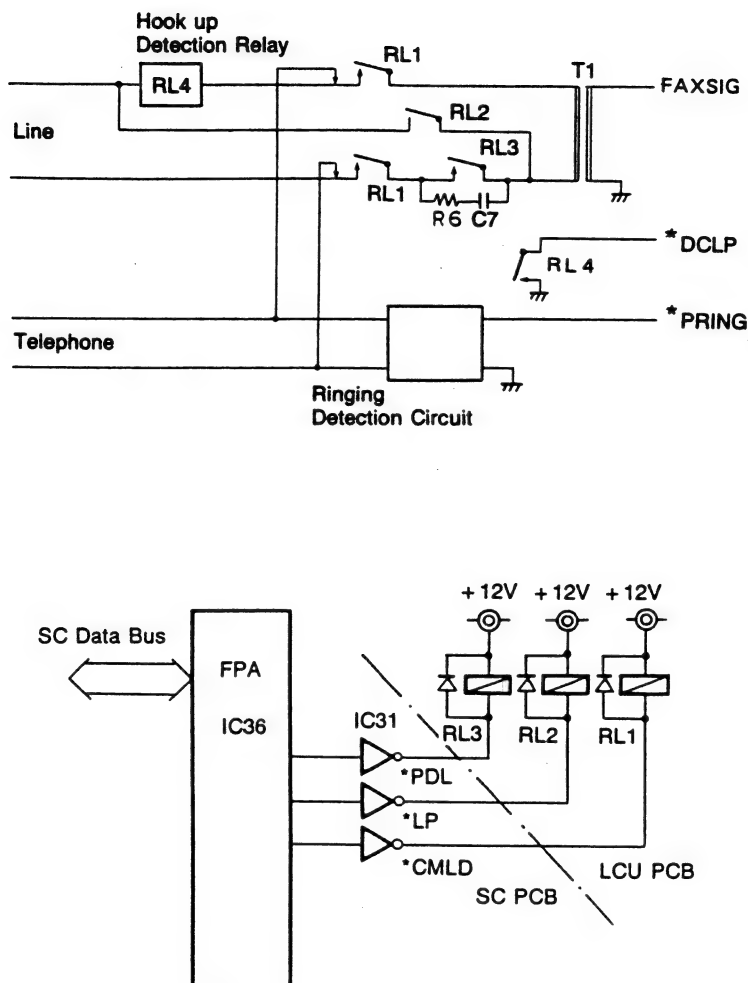


Figure 6.28 LCU Block Diagram

(1) Dial Pulse Generator Relay Circuit

This circuit consists of the RL3, RL2, IC36 and their peripheral circuit. This circuit generates dial pulses. The MPU in the SC PCB controls all the dial pulse generation. The MPU turns the relay RL1, RL2 and RL3 on and off through the data bus. The operation of these relays during dialing is shown in Figures 6.29 and 6.30. When the absence of the terminating message is confirmed by off-hook detection circuit, the MPU turns on the RL1 to close the DC loop, then after a prepause of 3.2 sec, closes the RL2 and turns the RL3 on and off to transmit the make and break signals to the exchange. RL2 serves to ensure the make signal level.

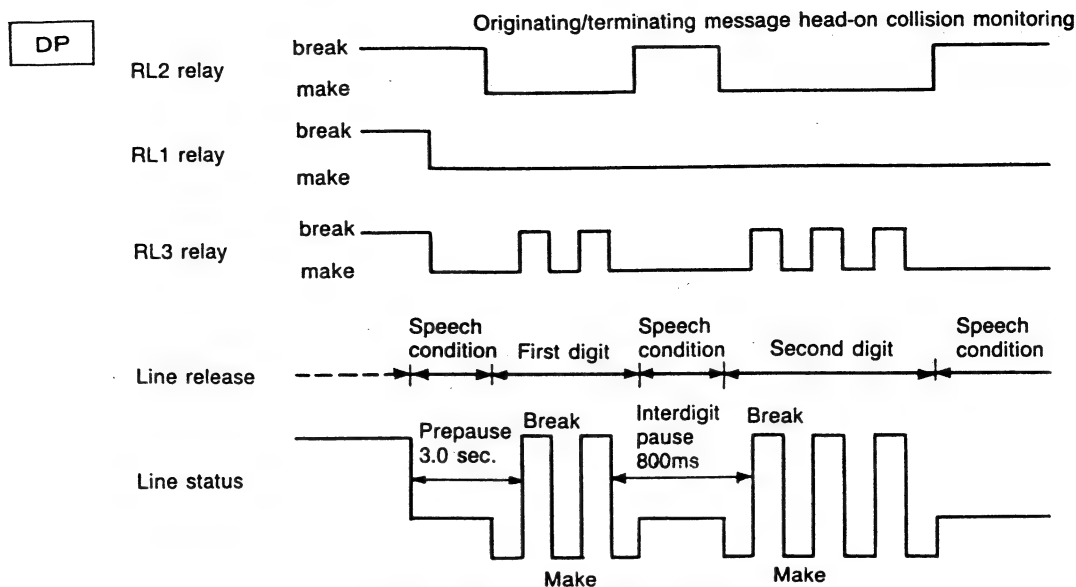


Figure 6.29 Dial Pulse Timing Chart

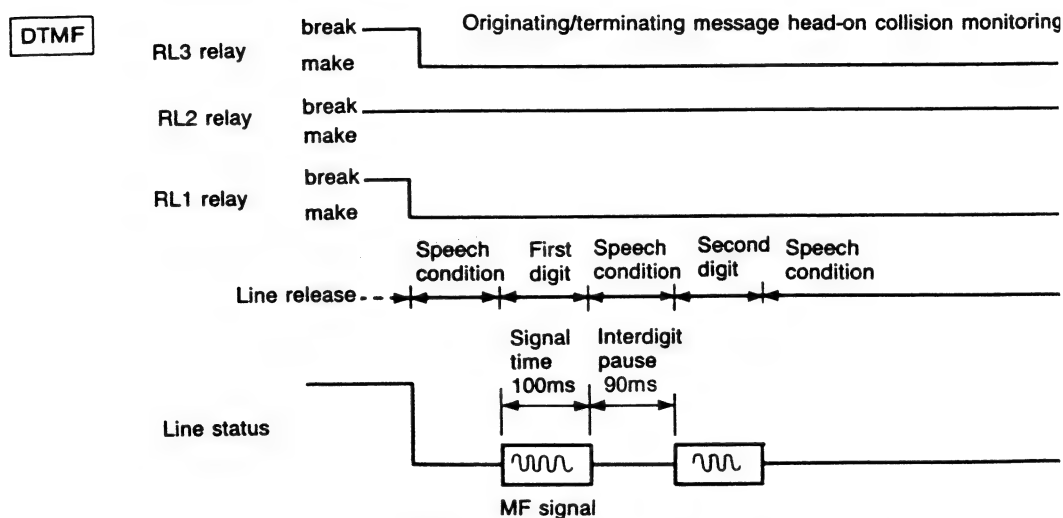


Figure 6.30 DTMF Dial Timing Chart

- (2) **MF Tone Generating Circuit**
The MF tone is generated from the MN8611A (IC12) in the modem block. The MF tone selection is controlled by the MPU. The data is written into the MN51040MGU (IC25) through the data bus to select the MF tone.
- (3) **Ringing Detection Circuit**
The ringing detection circuit consists of the PC1 on the LCU PCB, the IC27 on SC PCB and the I-port in the HD63B03X (IC24). The ringing signal is detected by the IC27 and conveyed to the IC24, where the signal is rectified into the square wave. Then the signal is transmitted to the IC24. The MPU examines if the signal is true one or the one caused by the chattering for a while. When the MPU acquires the confirmation, it decides that the ringing signal is detected.
- (4) **Off-Hook Detection Circuit**
The off-hook detection circuit consists of the PC2 on the LCU PCB and the I-port in the HD63B03X (IC24). When the loop current flows, the PC2 detects it and turns the logic level in the I-port into the low level. The MPU monitors the signal for a while then decides that the hook condition is detected.

6.2.3.5 Control Panel

The control panel is controlled by the panel MCU (Micro Control Unit: HD6301Y or HD63701Y). This one-chip microcomputer, panel MCU, is based on the CPU which has upper compatible mnemonic code with MC6800. In addition, the MCU has many functions such as internal ROM area and RAM, parallel I/O port, serial interface, program timer and so on.

The control panel block diagram is shown in Figure 6.31, and the circuit diagram is shown in page 7-11.

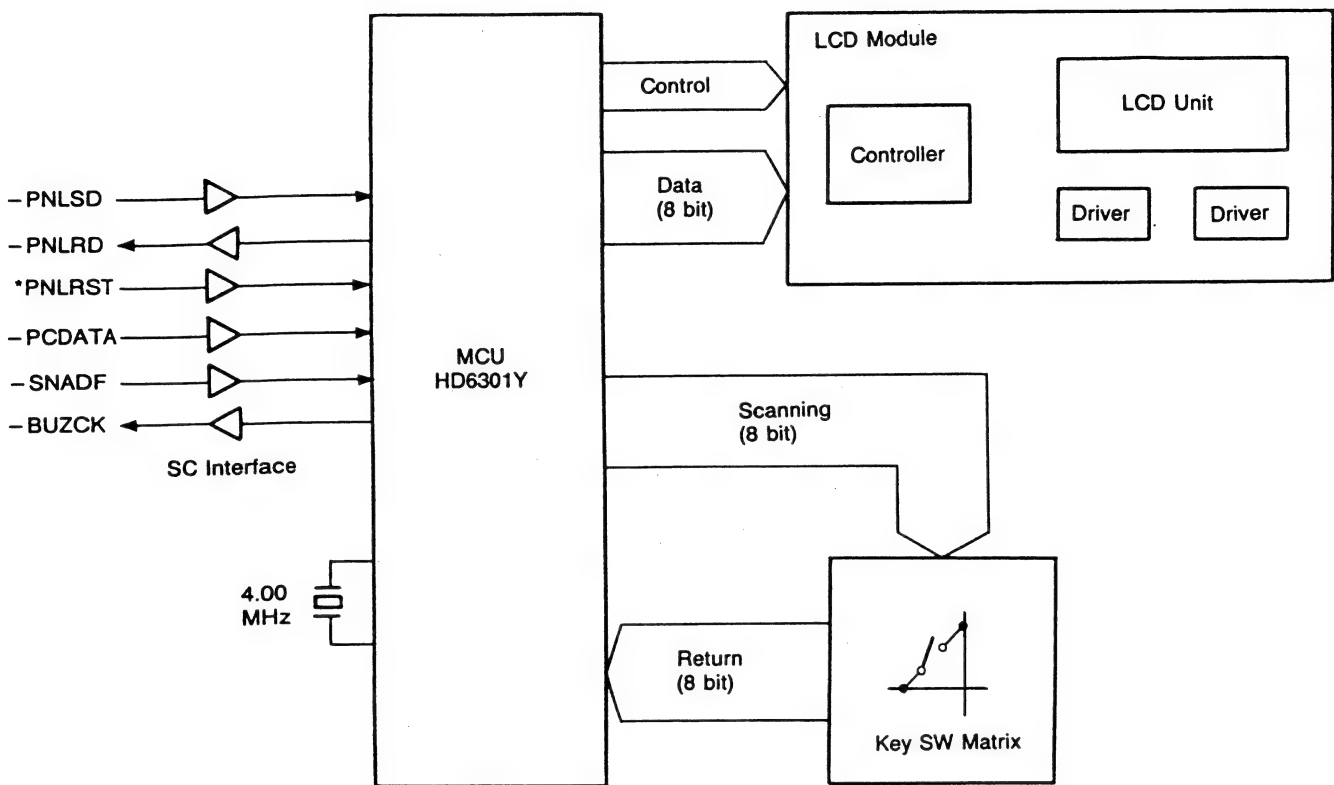


Figure 6.31 Control Panel Block Diagram

1. Key Switch Matrix

The MCU executes the key scan. It outputs the scan data to the key matrix through the port 6 as shown in Figure 6.32 and reads the data returned from the key matrix and latched it in the port 5. The MCU detects which key is entered by comparing the data in port 5 with the data registered in memory at the previous scan.

For example, the MCU outputs the low signal to *KSCN6, then reads the data from the port 5. If the data is 01111111 (binary number) and the previous data at the same line is 11111111 (binary number), the MCU decides that the START key is being entered.

The key matrix is shown in Figure 6.33, and the circuit diagram is shown in page 7-12.

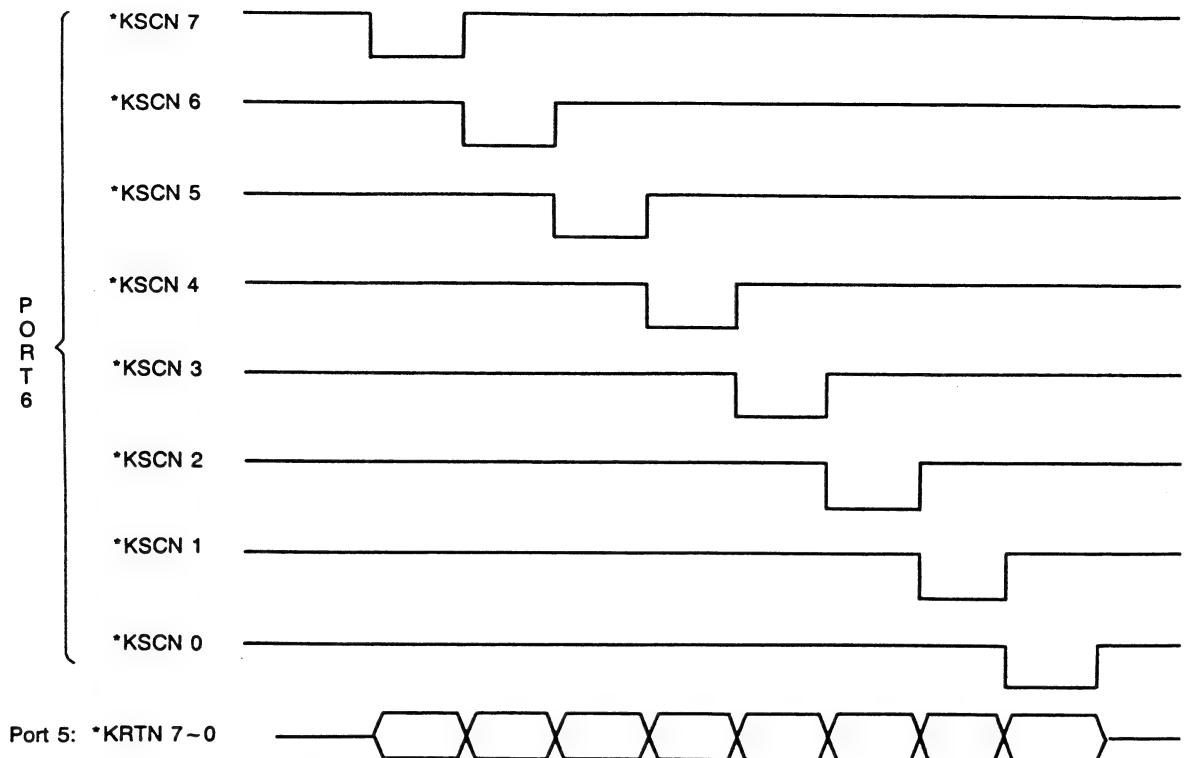


Figure 6.32 Key Scan Signal and Timing

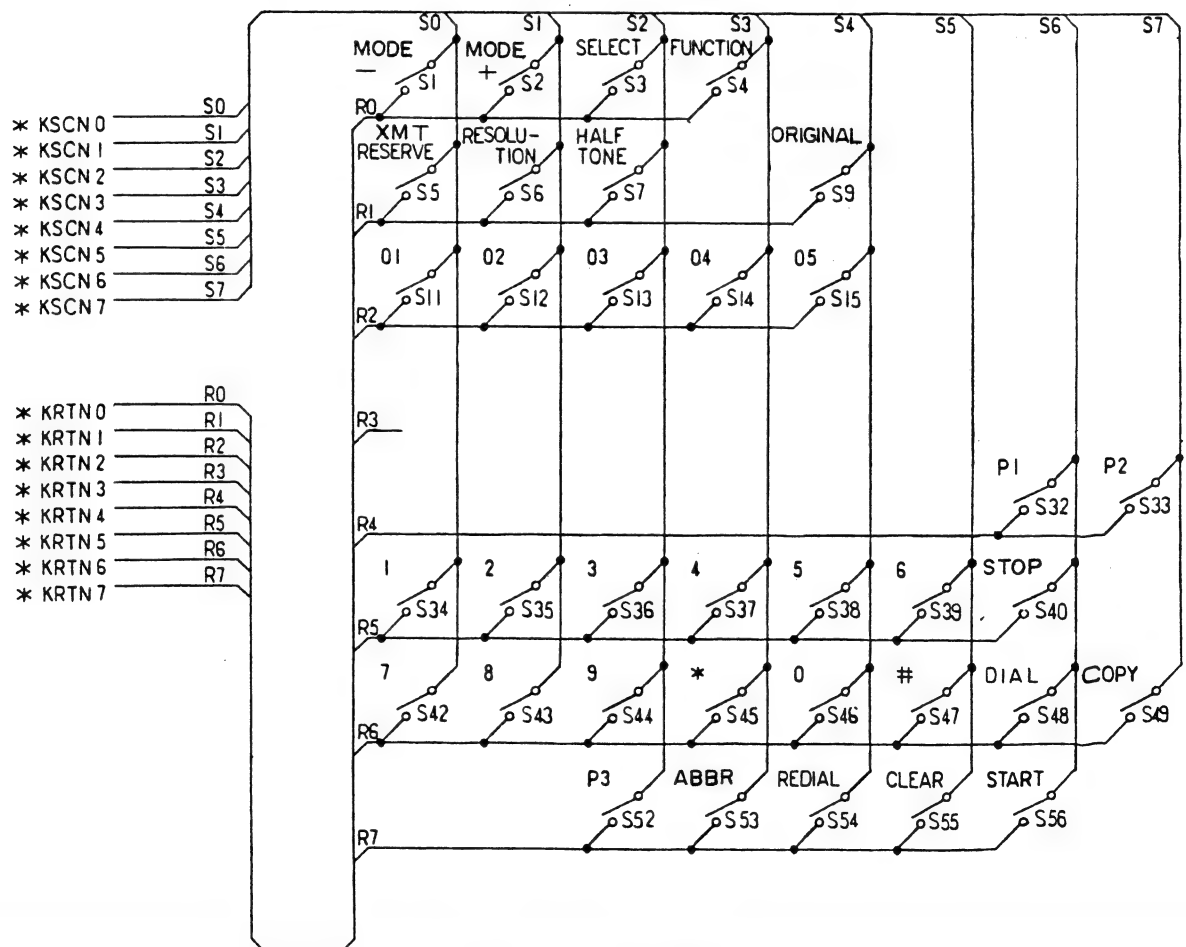


Figure 6.33 Key Matrix

2. LCD

The panel MCU controls the LCD module through the port 3 and port 7.

The LCD module interface timing chart is shown in Figure 6.34.

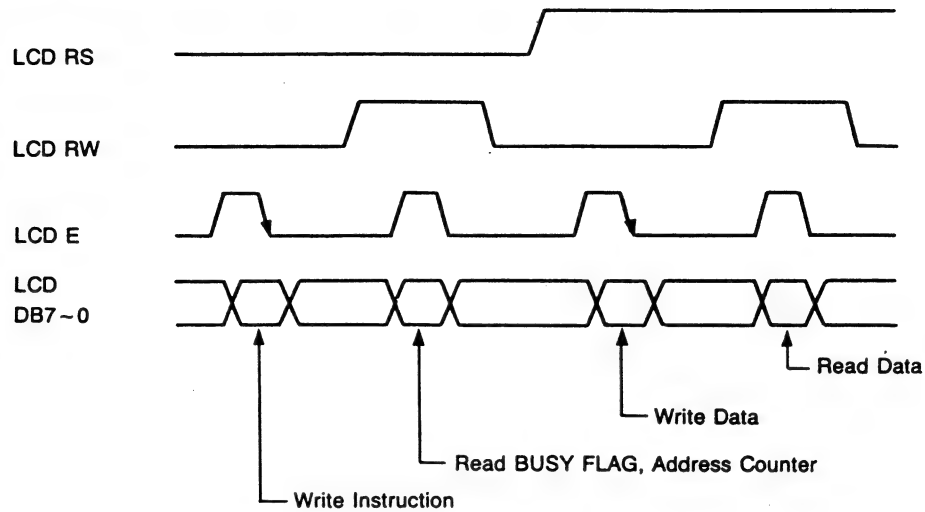
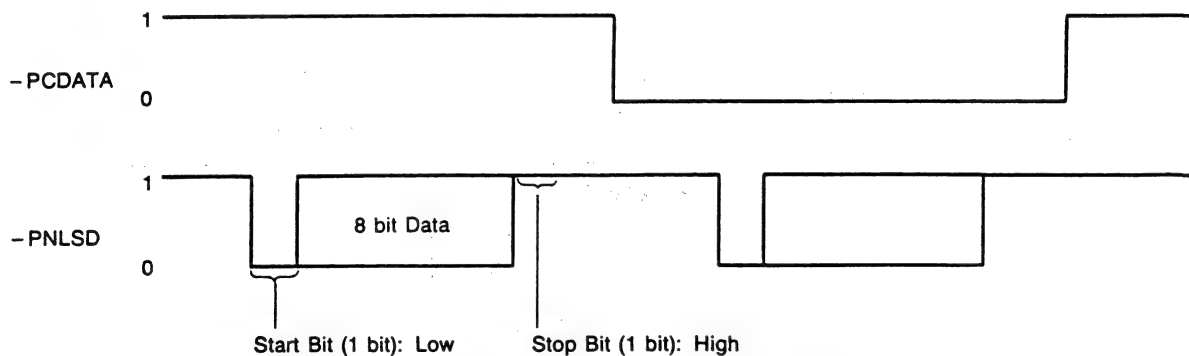


Figure 6.34 LCD Module Interface Timing Chart

3. SC Interface Block

The panel MCU is hand-shaking with the MPU mounted on the SC PCB through the serial communication interface. The transmission mode is asynchronous and the data formation is shown in Figure 6.35.

The data and the command data are distinguished by reading the logic level of -PCDATA connected with the bit 7 in the port 4. When -PCDATA is high level, -PNLSD conveys the data. When -PCDATA is low level, -PNLSD conveys the command.



When -PCDATA is the high level (1), -PNLSD conveys Data

When -PCDATA is the low level (0), -PNLSD conveys Command

Figure 6.35 Data Formation

4. Others

The reset signal of the panel MCU is controlled by the SC PCB.

The panel MCU as well as SC PCB monitors the ADF sensor.

The beep sound which notices if the key entering is accepted or rejected is controlled by the panel MCU. The control signal -BUZCK is connected with the monitor block in the SC PCB.

6.2.3.6 Contact Image Sensor Unit

The unit is equipped with the contact image sensor to read the picture data from the document. This contact image sensor unit consists of pre-processing circuit, compensation processing circuit, binary coding processing circuit and either processing circuit. The picture data is transmitted to the FCA directly through the synchronous type of serial communication interface.

The MPU controls the mode selection and the threshold selection according to the key operation. The relation between the mode select signals (MDS1, MDS2 and MDS3) and the contrast level at each mode is shown in Figure 6.36. When the unit is installed, the normal contrast is selected as the default value and its threshold is fixed at A level. When the dark contrast is set on the control panel, the threshold level 8 is selected. In the same way, the level C is selected for the light contrast. The other threshold contrast level can be selected by controlling the mode select signals shown in Figure 6.36.

The contact image sensor block diagram, the control timing chart and the transmitting timing chart are shown in Figures 6.37, 6.38 and 6.39.

Mode Select Signal			Mode	Coding Process	Threshold	Compensation Curve	Reading Contrast
*MDS1	*MDS2	*MDS3					
1	0	0	Normal Document Mode	Binary Coded Process	8 (D)	Linear	Light
1	0	1			9		
0	0	0			A (N)		
0	0	1			B		
0	1	0			C (L)		
0	1	1			D		
1	1	0	Half Tone	Dither Process		Linear	Light
1	1	1				Log Curve	Dark

Figure 6.36

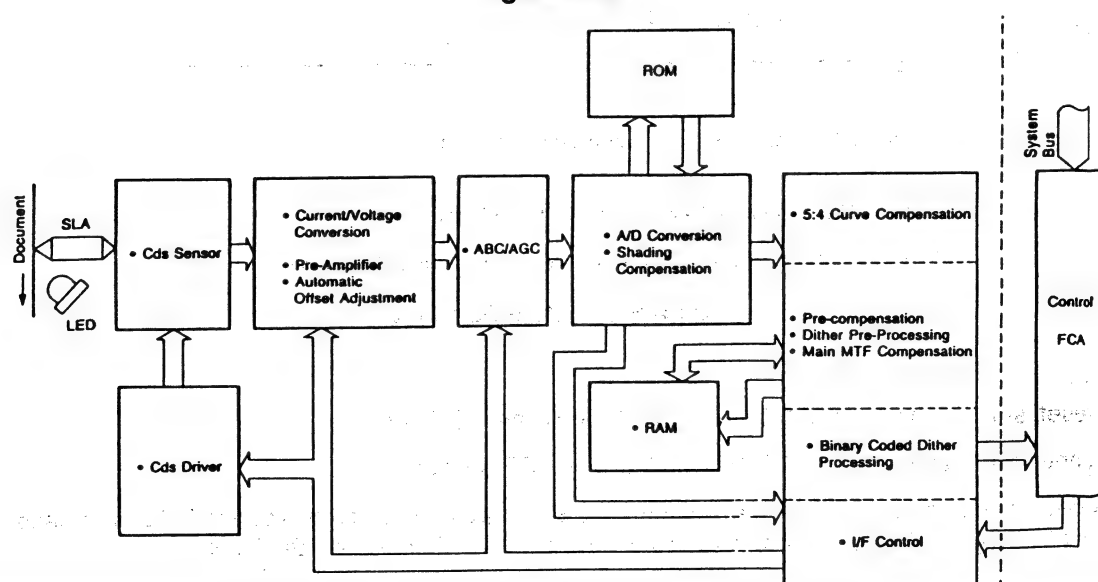


Figure 6.37 Contact Image Sensor Block Diagram

Chapter 7 ELECTRIC CIRCUIT DIAGRAMS

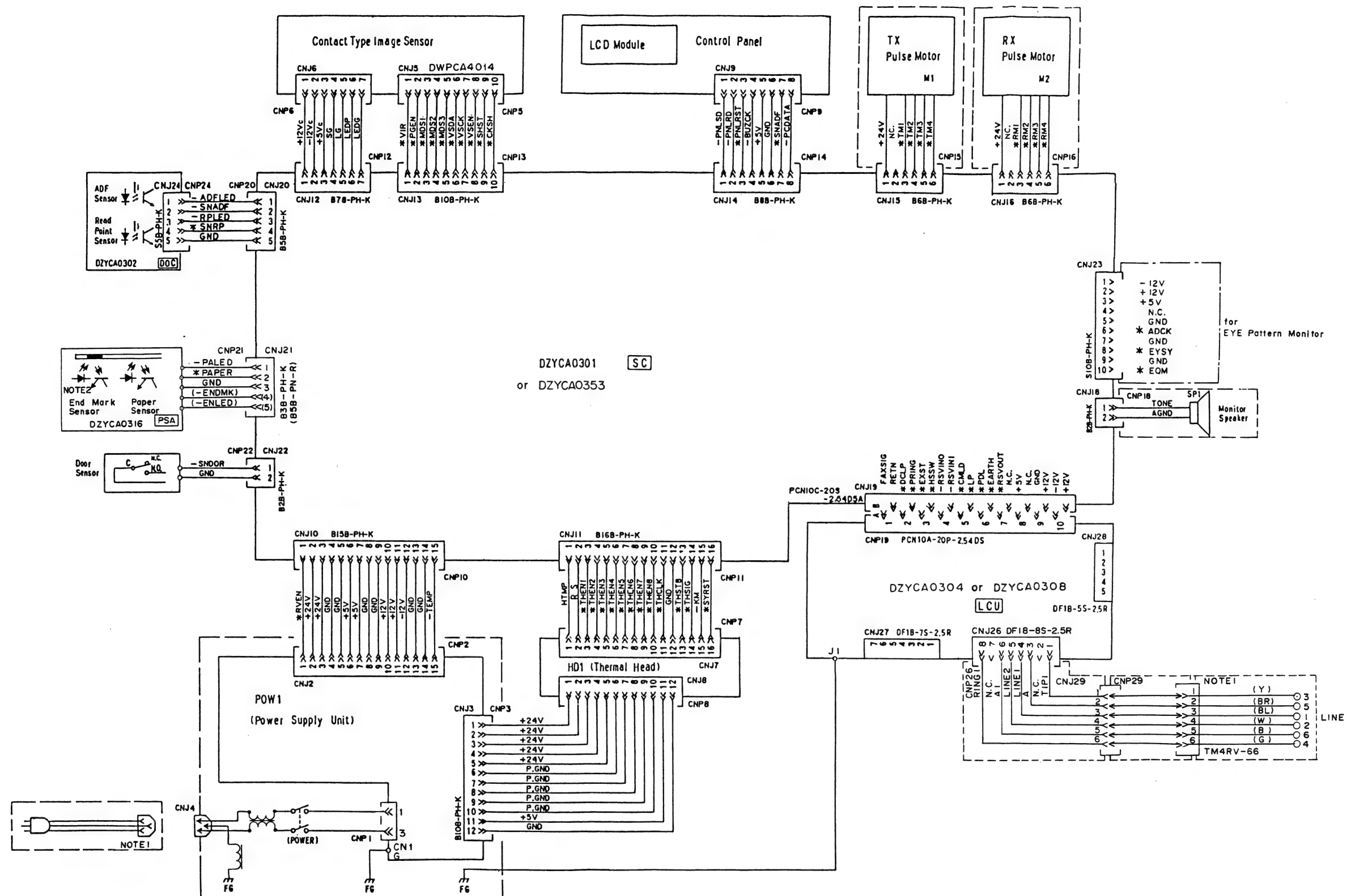
CHAPTER 7 ELECTRIC CIRCUIT DIAGRAMS

CONTENTS

CHAPTER 7 ELECTRIC CIRCUIT DIAGRAMS

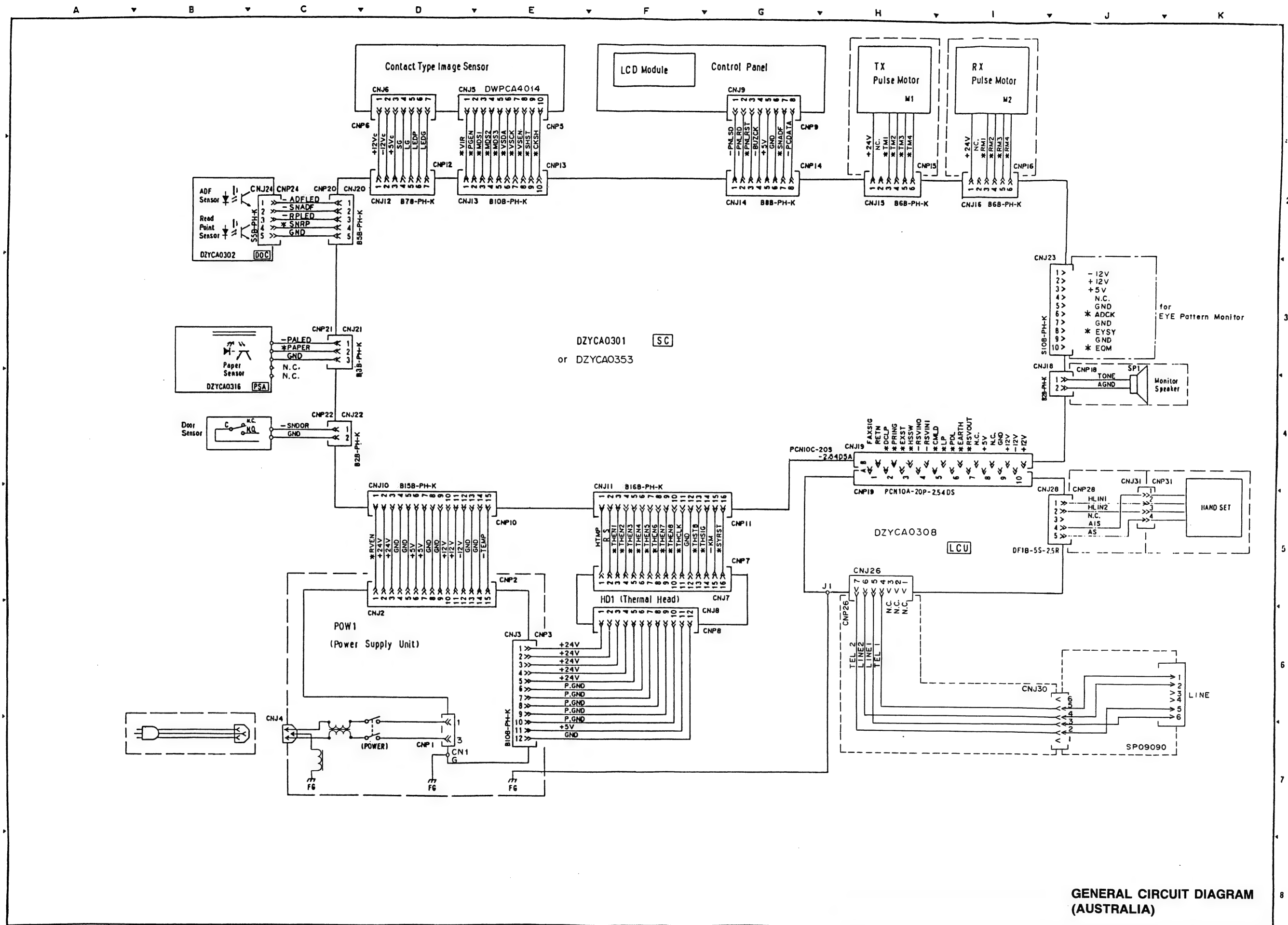
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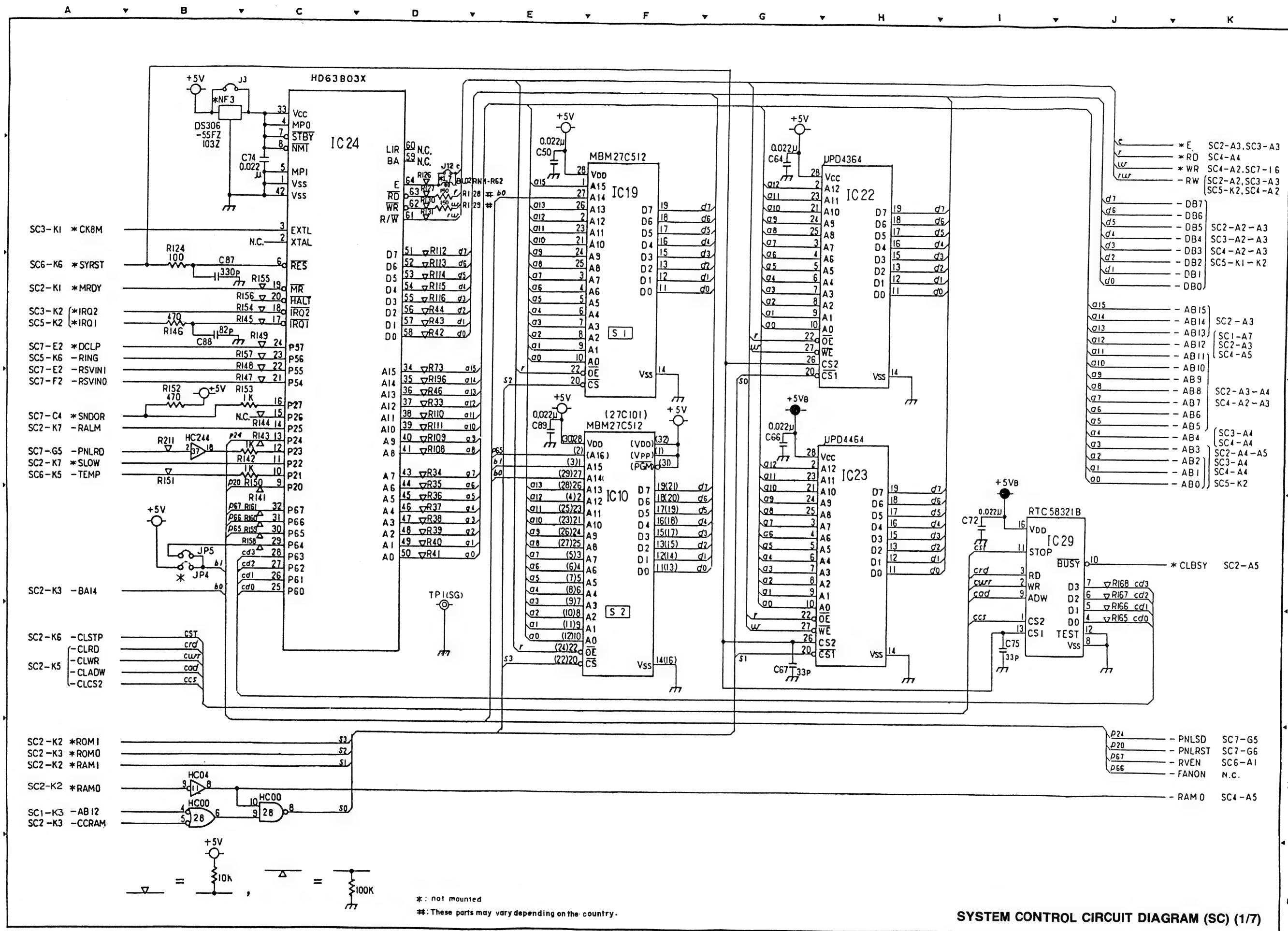
A B C D E F G H I J K



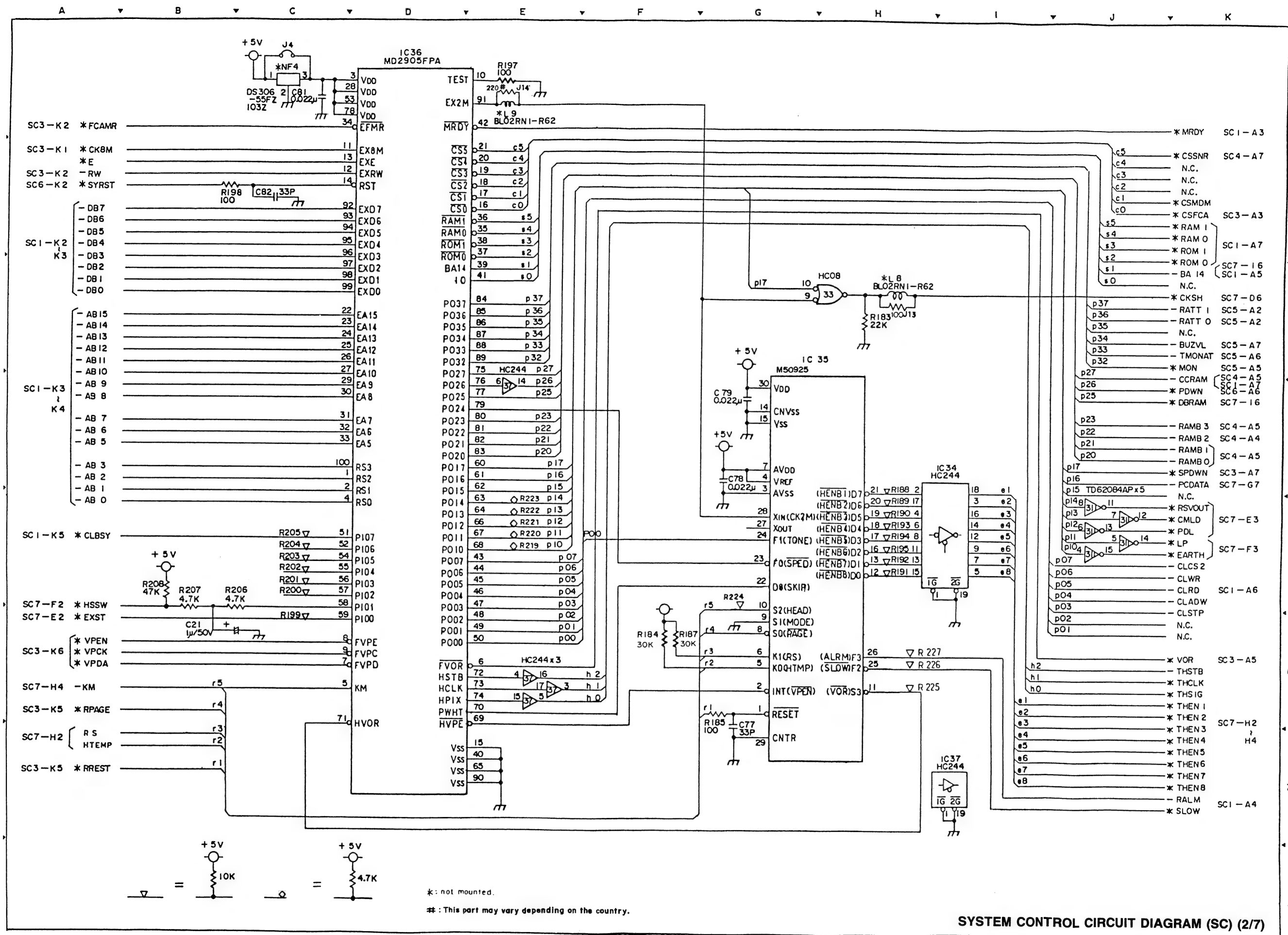
NOTE 1 This parts may vary depending on the country.
NOTE 2 The End Mark Sensor is provided only for the WEST GERMANY.

GENERAL CIRCUIT DIAGRAM
(Others)

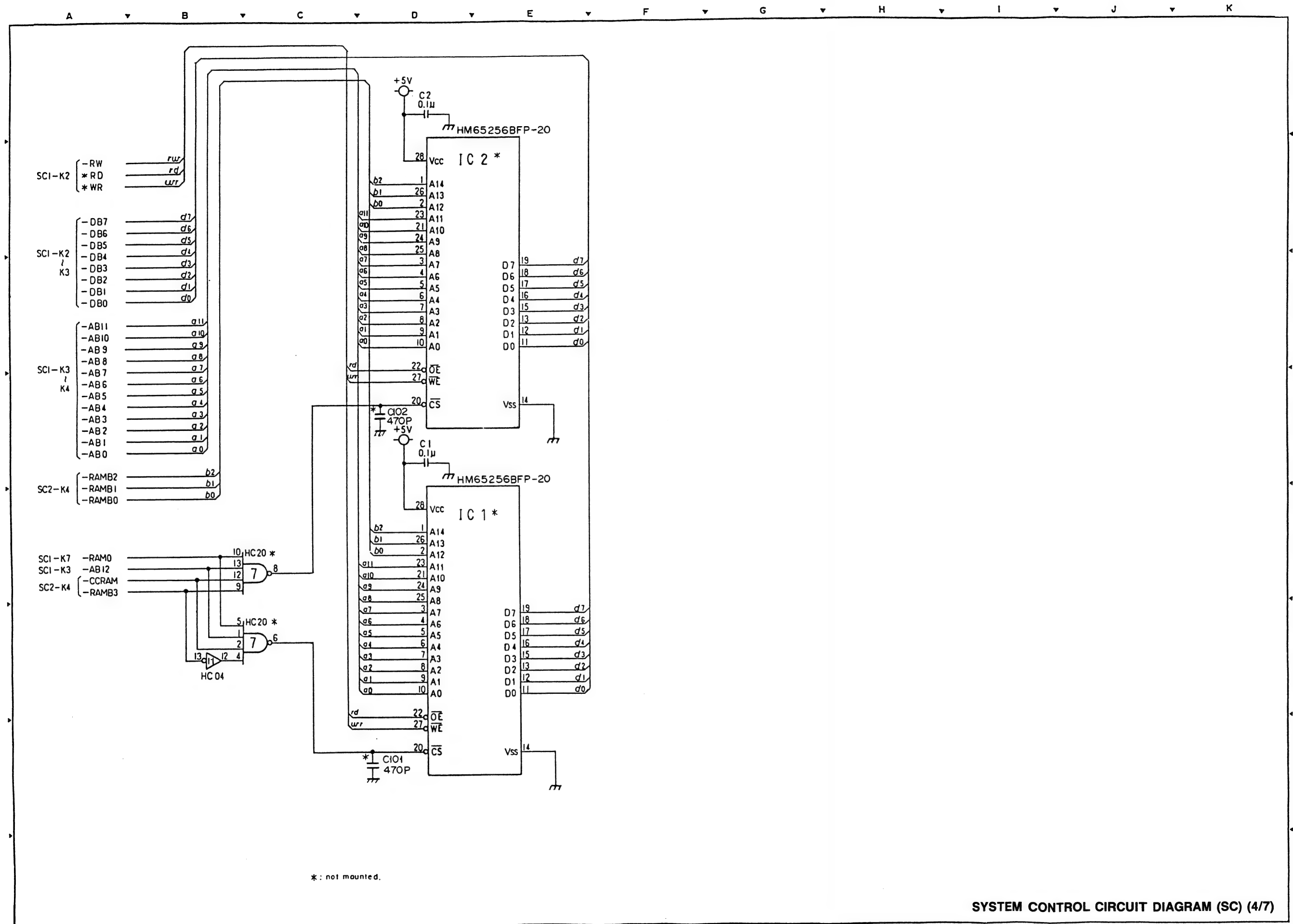




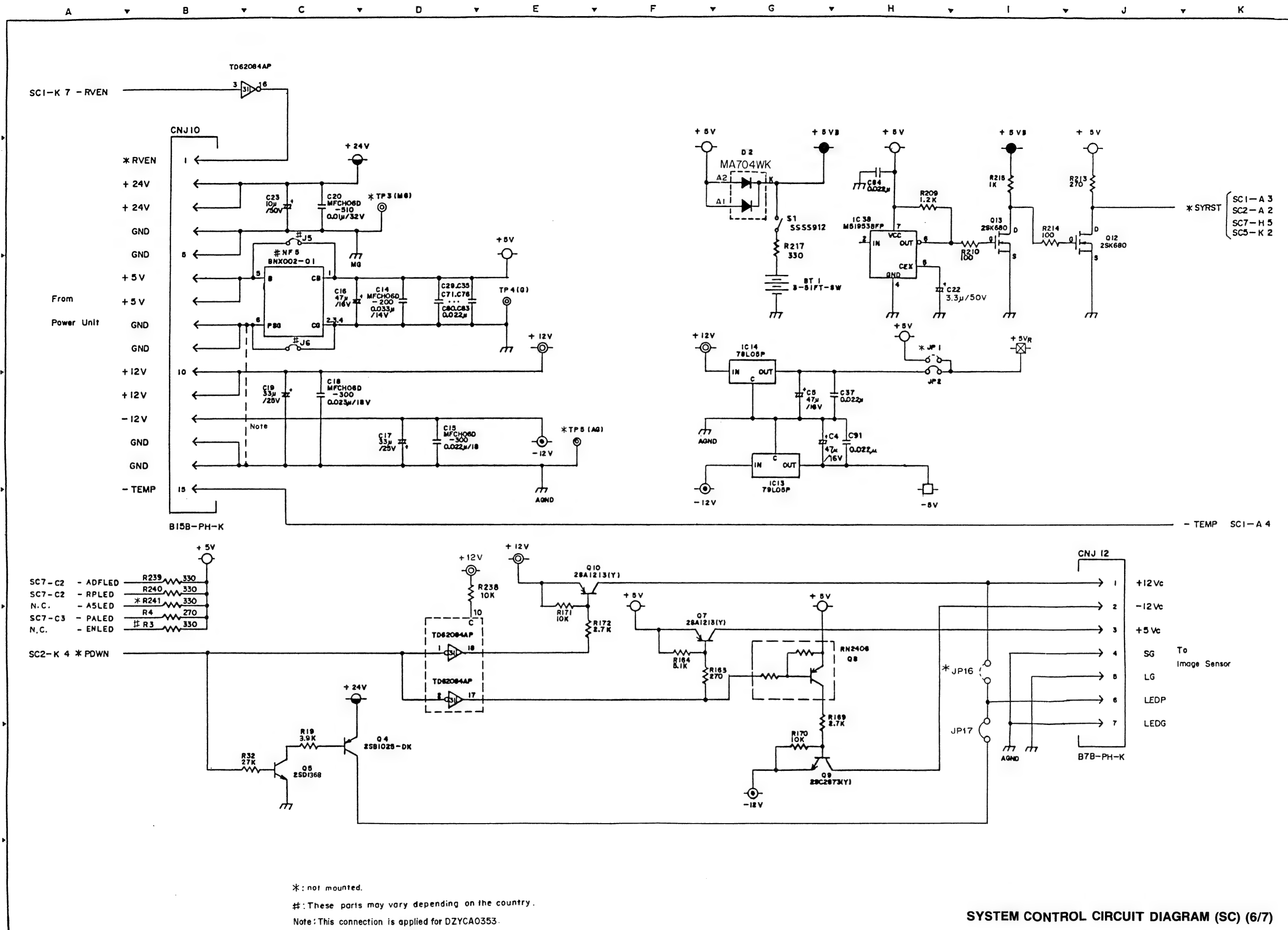
SYSTEM CONTROL CIRCUIT DIAGRAM (SC) (1/7)

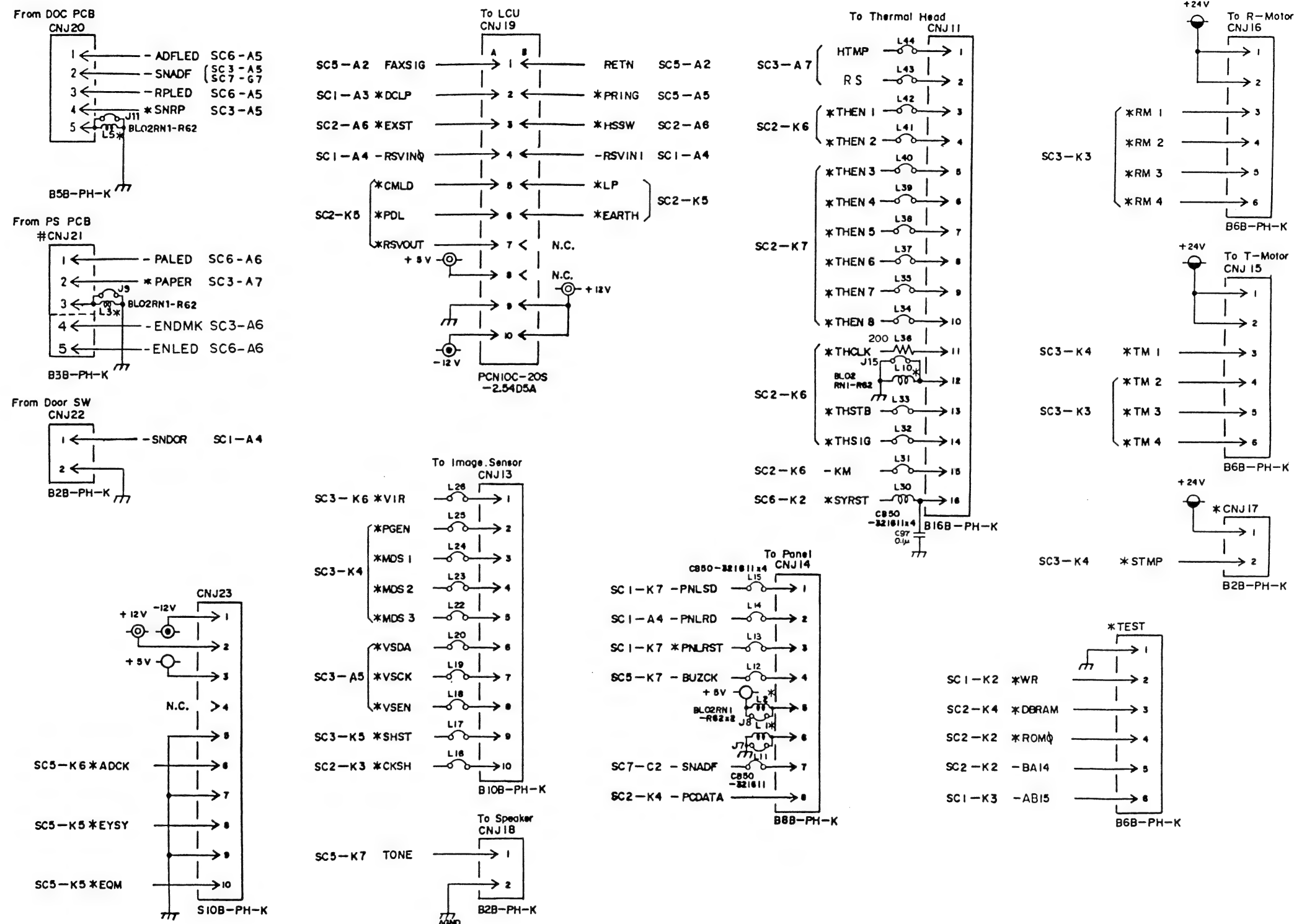


SYSTEM CONTROL CIRCUIT DIAGRAM (SC) (2/7)



SYSTEM CONTROL CIRCUIT DIAGRAM (SC) (4/7)





*: not mounted.

‡: This part may vary depending on the country.

SYSTEM CONTROL CIRCUIT DIAGRAM (SC) (7/7)

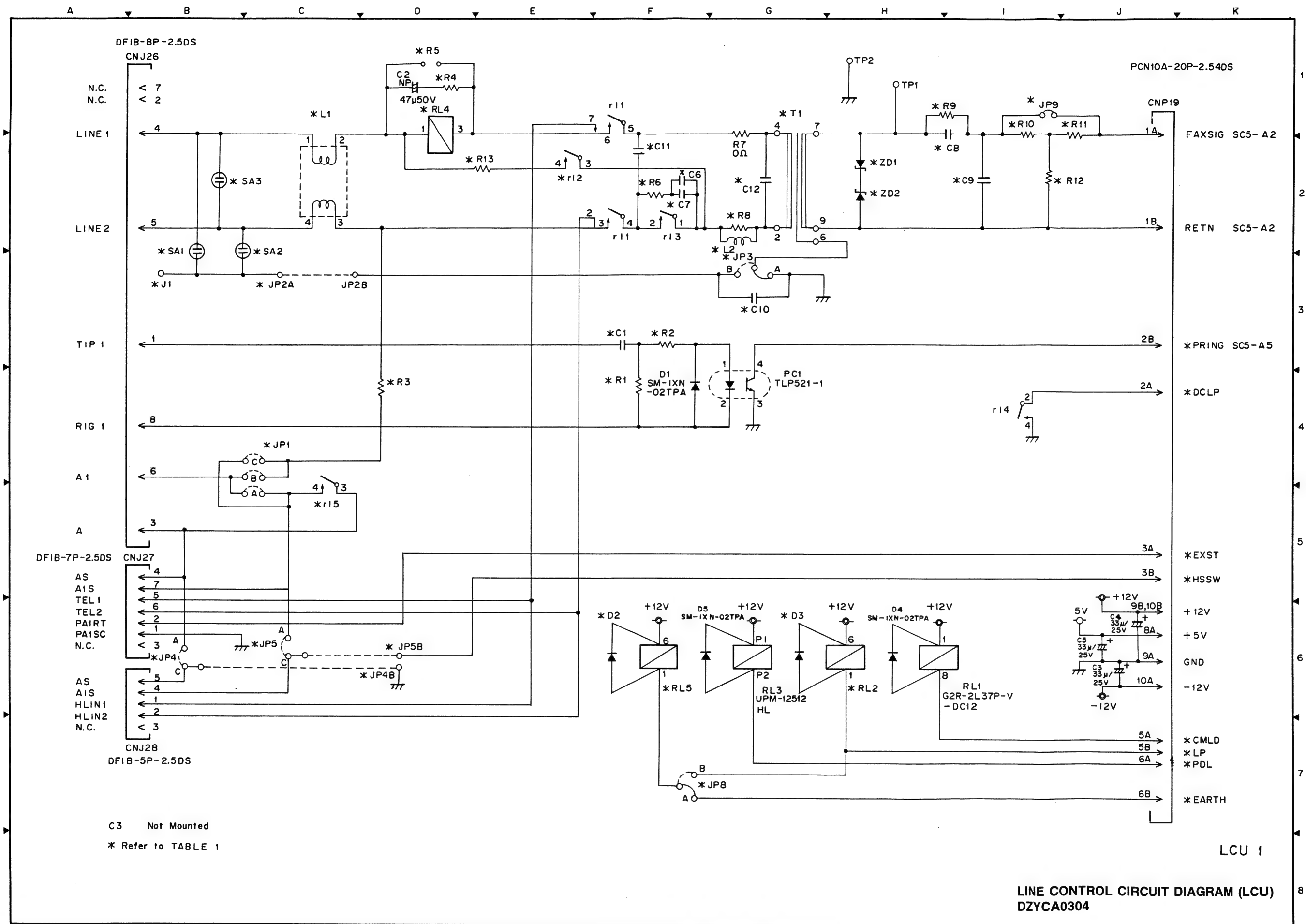


TABLE 1

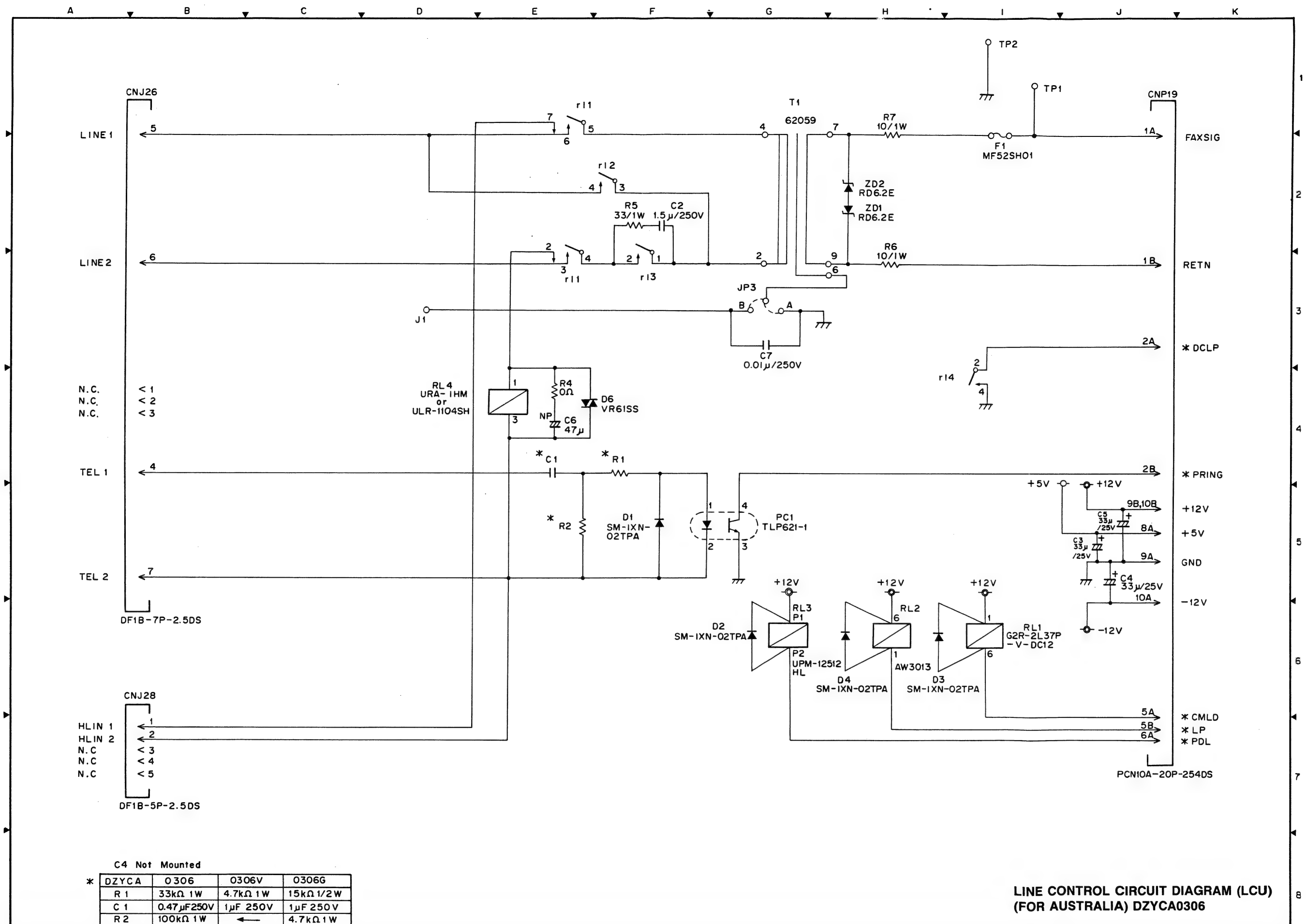
No.	Ref. No.	CA304	CA304A	CA304B	CA304H	CA304L	CA304N	CA304O	CA304Q	CA304R	CA304S	CA304T	CA304V	CA304W	CA304F	CA304XB	CA304M	CA304E	CA304RA	CA304FA
1	SA1	DSA-242MA-05F25	O	DSA-302MA-05F25	O	—	O	—	O	—	O	O	O	O	O	O	—	DSA-302MA-05F25	—	O
2	SA2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	SA3	DSA-401MS CF25	O	O	O	—	O	O	O	O	O	O	O	O	O	O	—	O	O	O
4	RL2	AW3013	O	O	O	—	O	O	O	O	O	O	O	O	O	O	—	O	O	O
5	RL4	URA-1HM or ULR-11014SH	O	O	O	O	O	URA-2H or ULR-1170SH	O	O	O	O	O	O	O	O	O	O	O	O
6	RL5	—	AW3013	AW3013	—	AW3013	—	—	—	—	—	—	—	AW3013	AW3013	—	AW3013	AW3013	—	AW3013
7	D2	—	SM-1XN-02TPA	SM-1XN-02TPA	—	SM-1XN-02TPA	—	—	—	—	—	—	—	SM-1XN-02TPA	SM-1XN-02TPA	—	SM-1XN-02TPA	SM-1XN-02TPA	—	SM-1XN-02TPA
8	D3	SM-1XN-02TPA	O	O	O	—	O	O	O	O	O	O	O	O	O	O	—	O	O	O
9	ZD1	RD6.2E	O	O	O	O	O	O	O	O	O	—	O	O	O	O	O	O	O	O
10	ZD2	RD6.2E	O	O	O	O	O	O	O	O	O	—	O	O	O	O	O	O	O	O
11	R1	—	47k Ω 1/2W	—	—	—	—	—	—	—	9.1k Ω 1/2W	—	—	—	—	—	—	—	—	—
12	R2	33k Ω 1W	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	51k Ω 1W	O
13	R3	—	0 Ω	100 Ω 1/4W	—	0 Ω	—	—	—	—	—	—	—	0 Ω	100 Ω 1/4W	—	0 Ω	100 Ω 1/4W	—	100 Ω 1/4W
14	R4	0 Ω	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
15	R5	—	—	—	—	VR61SSW	—	—	—	—	—	—	—	—	—	—	VR61SSW	—	—	—
16	R6	560 Ω 1/4W	O	100 Ω 1/4W	100 Ω 1/4W	100 Ω 1/4W	O	620 Ω 1/4W	100 Ω 1/4W	O	O	620 Ω 1/4W	100 Ω 1/4W	220 Ω 1/4W	O	O	100 Ω 1/4W	100 Ω 1/4W	O	O
17	R13	0 Ω	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	27 Ω 1W	O	O
18	R8	Short	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	—	O	O
19	R9/C13	0 Ω	O	O	O	560 1/4W	O	O	O	O	O	O	O	O	O	O	2.7k Ω 1/4W	0.47 μ F 50V	O	O
20	C1	0.47 μ F 250V	O	O	O	O	O	O	O	O	2.2 μ F 250V	O	O	O	O	1 μ 250V	O	O	O	O
21	C8	—	—	—	—	—	—	1 μ F 250V	—	—	—	—	0.22 μ F 250V	—	—	—	—	—	—	—
22	C7	1 μ F 250V	O	1.8 μ F 250V	1.8 μ F 250V	1 μ F 250V	O	O	0.47 μ F 250V	O	O	0.47 μ F 250V	O	O	O	O	O	1.8 μ F 250V	O	O
23	C8	—	—	—	—	0.33 μ F 50V	—	—	—	—	—	—	—	—	—	—	1 μ F 50V	1 μ F 50V	—	—
24	C9	0.047 μ F 50V	0.22 μ F 50V	O	O	0.12 μ F 50V	0.056 μ F 50V	O	O	O	0.1 μ 50V	O	O	O	O	O	0.082 μ F 50V	0.082 μ F 50V	O	O
25	C10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
26	JP1	—	C Short	C Short	—	C Short	—	—	—	—	—	—	—	C Short	C Short	—	C Short	C Short	—	C Short
27	JP2A-B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
28	JP3	A Short	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
29	JP4,5C-E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30	JP4,5C-A	0 Ω	O	O	O	—	O	O	O	O	O	O	O	O	—	O	—	O	O	—
31	JP8	A Short	O	B Short	O	O	O	O	O	O	O	O	O	O	B Short	O	O	B Short	O	B Short
32	L1	—	PLC11HS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
33	L11-2,3-4	Short	—	O	O	O	O	O	O	O	O	O	O	O	O	O	—	—	—	—
34	J1-FG	DZBAG8701	O	O	O	—	O	—	O	—	O	O	O	O	O	O	—	O	—	O
35	R10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100 Ω 1/4W	—	—	—
36	R11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100 Ω 1/4W	—	—	—
37	R12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2k Ω 1/4W	—	—	—
38	JP9	0 Ω	O	O	O	O	O	O	O	O	O	O	O	O	O	O	—	O	O	O
39	C11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.022 μ F 400V	—	ERZC14DK 121	—
40	C12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0033 μ F 400V	—	—	—
41	L2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	FL7H272 J	—	—	—
42	T1	62059B	O	O	O	O	62159B	O	O	O	O	O	O	O	O	O	62159B	6321 2 B	O	O
43	C2	47 μ F 50V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	100 μ F 50V
		Others	West Germany	U. K.	Hong Kong	Switzerland	Norway	Sweden	Portugal	The Netherlands	South Africa	Denmark	Italy	Austria	New Zealand	Ireland	Switzerland	U. K.	The Netherlands	New Zealand

O ---- Same as CA304

— ---- Not Mounted

LCU2

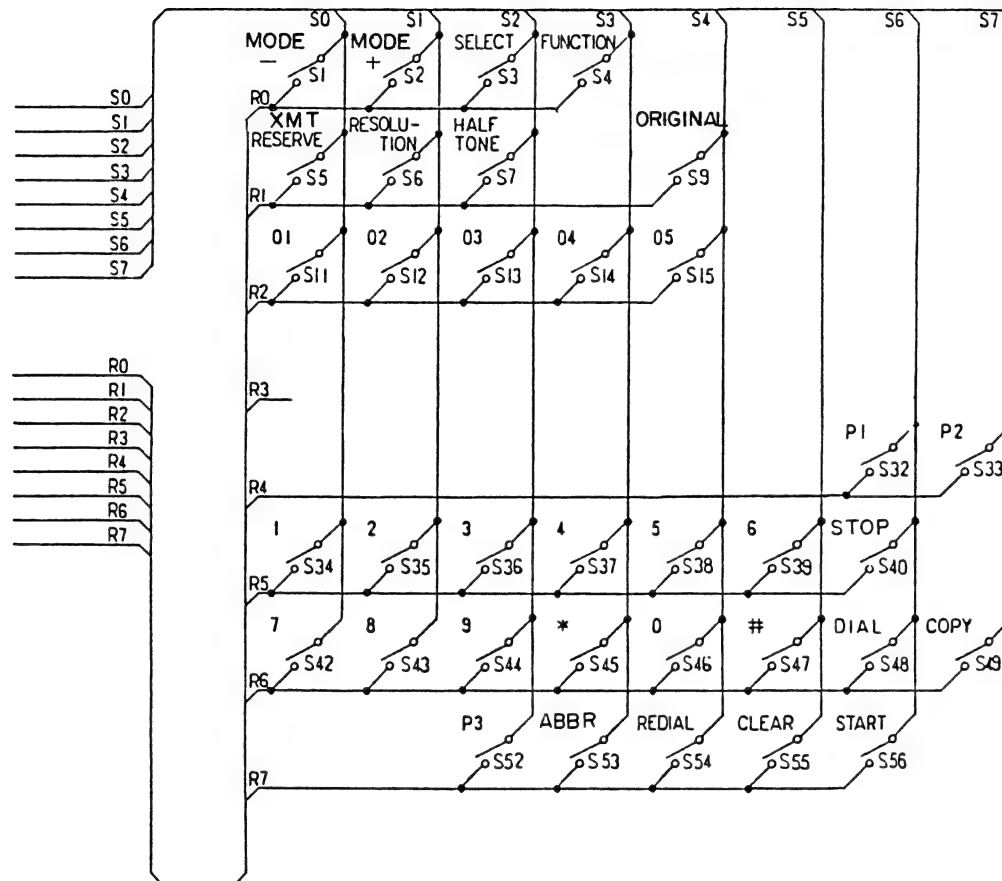
LINE CONTROL CIRCUIT DIAGRAM (LCU)
DZYCA0304



A B C D E F G H I J K

PNIJ3 * KSCN 0
 PNIJ3 * KSCN 1
 PNIJ3 * KSCN 2
 PNIJ4 * KSCN 3
 PNIJ4 * KSCN 4
 PNIJ4 * KSCN 5
 PNIJ4 * KSCN 6
 PNIJ4 * KSCN 7

PNIJ4 * KRTN 0
 PNIJ4 * KRTN 1
 PNIJ4 * KRTN 2
 PNIJ5 * KRTN 3
 PNIJ5 * KRTN 4
 PNIJ5 * KRTN 5
 PNIJ5 * KRTN 6
 PNIJ5 * KRTN 7

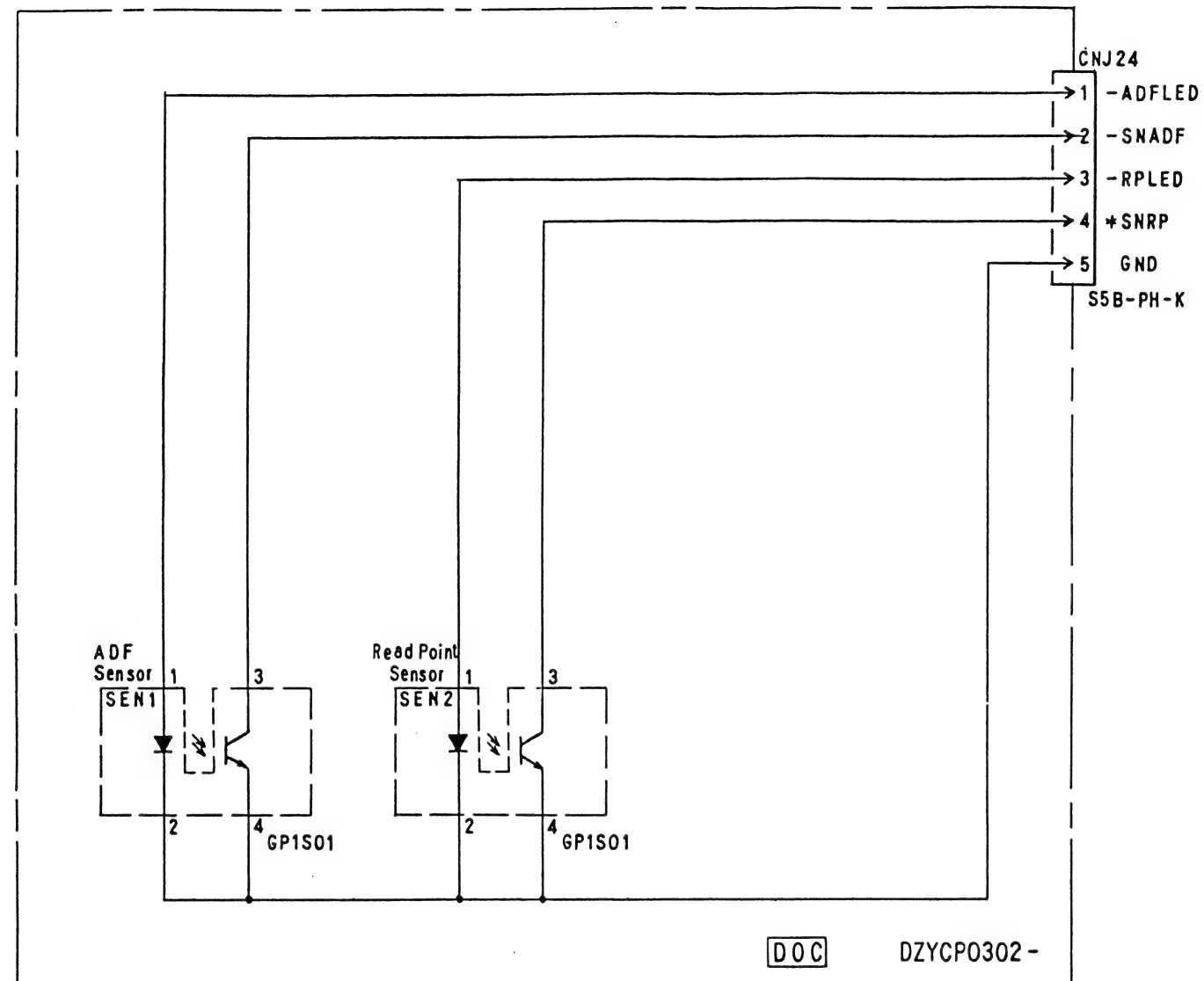


KSCN KRTN	0	1	2	3	4	5	6	7
0	MODE —	MODE +	SELECT	FUNCTION				
1	XMT RESERVE	RESOLUTION	HALF TONE		ORIGINAL			
2	01	02	03	04	05			
3								
4							P1	P2
5	1	2	3	4	5	6	STOP	
6	7	8	9	*	0	#	DIAL	COPY
7			P3	ABBR	REDIAL	CLEAR	START	

PN 2

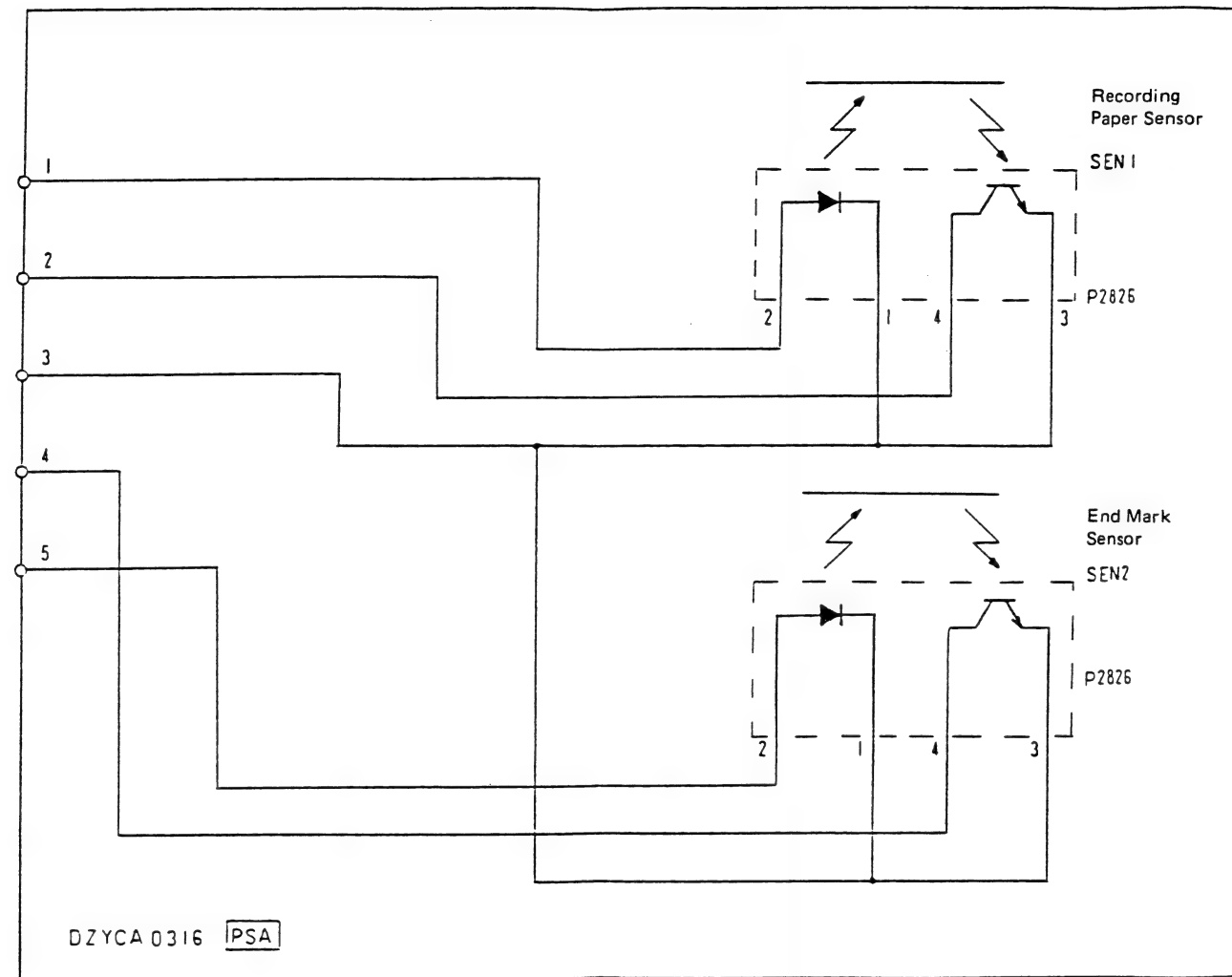
CONTROL PANEL CIRCUIT DIAGRAM (2/2)

A B C D E F G H I J K



DOCUMENT SENSOR CIRCUIT DIAGRAM (DOC)

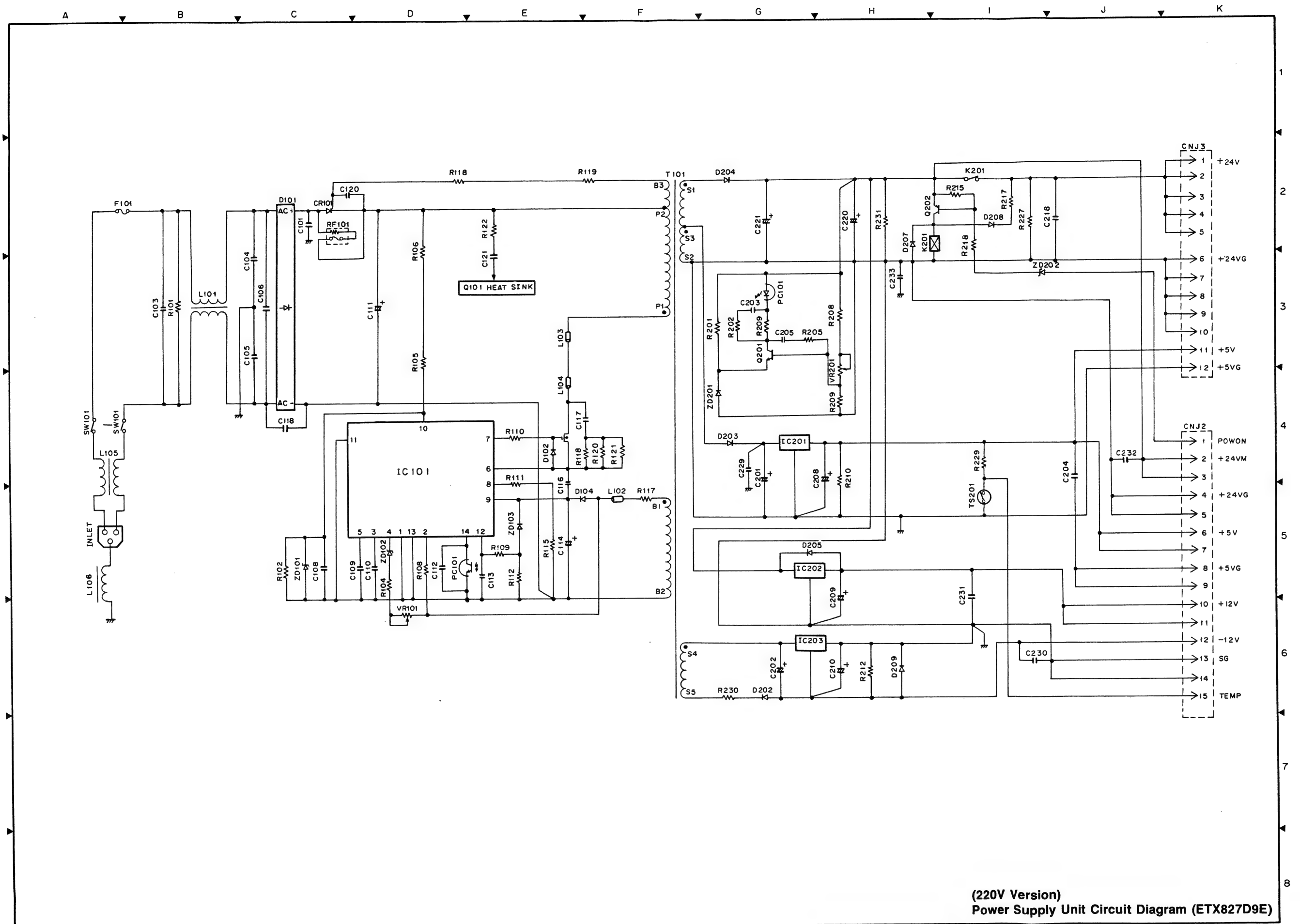
— PALED
 † PAPER
 GND
 — ENDMK
 — ENLED



○: mounted
 —: not mounted.

	SEN2
DZYCA0316	—
DZYCA0316A	○

RECORDING PAPER SENSOR CIRCUIT DIAGRAM (PSA)



Chapter 8 MECHANICAL EXPLODED VIEWS & PARTS LIST

CHAPTER 8 MECHANICAL EXPLODED VIEWS & PARTS LIST

CONTENTS

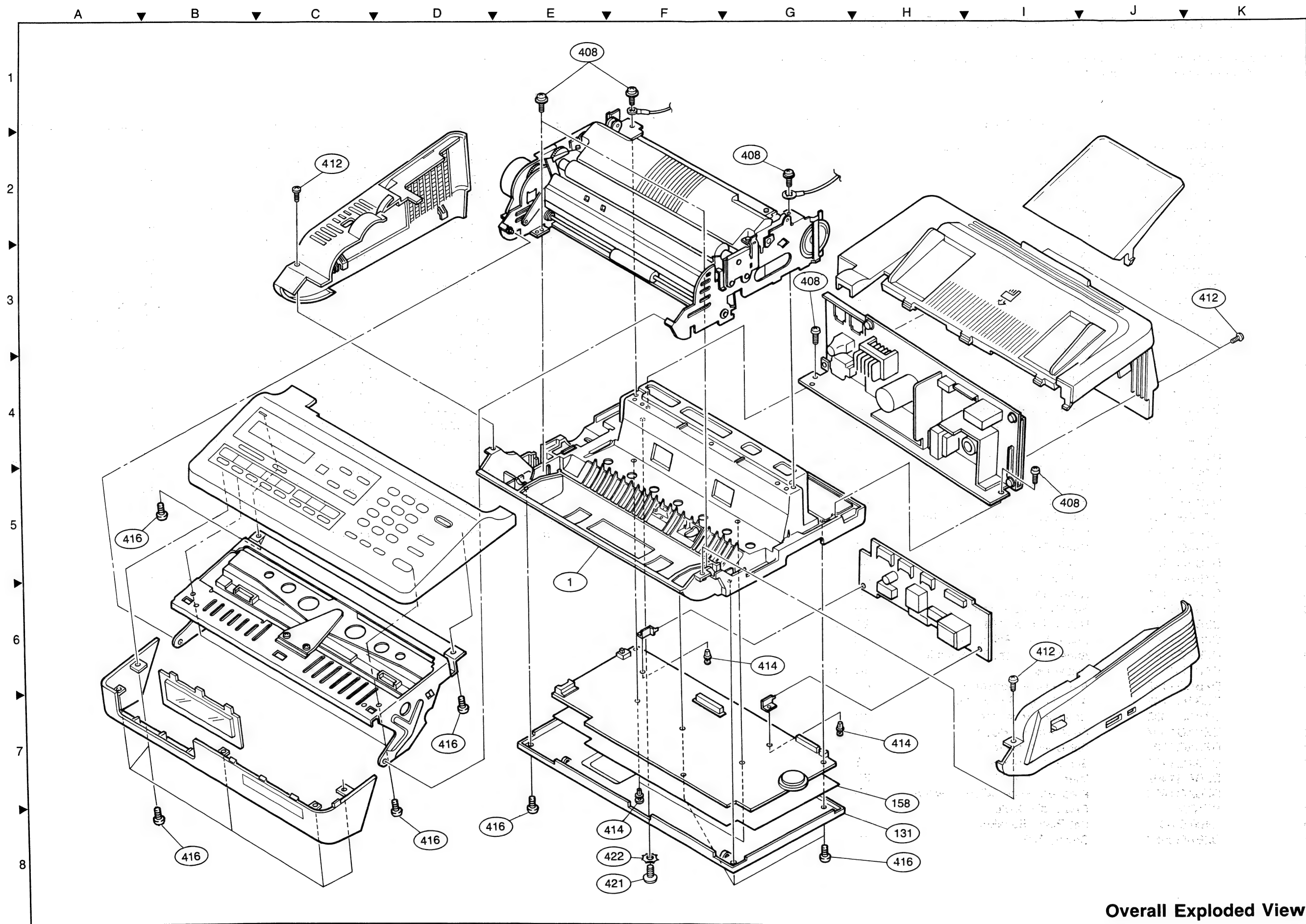
Overall Exploded View	8-2
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Electrical Components	8-8
Harness	8-10
Packing	8-12

<p>This parts list is only for reference. Don't order any service parts from this. Please order them from Maintenance Parts List.</p>

PARTS LIST FOR OVERALL EXPLODED VIEW

CAUTION: This parts list is only for reference. Don't order any service parts from this. Please order them from Maintenance Parts List.

REF. NO.	PART NO.	DESCRIPTION	LOCATION
1	DZBAG0122B	Base Ass'y, Lower	6E
131	DZBAG1180	Plate, Steel Bottom	8H
158	DZBAG8214	Insulator, PVC, SC	8H
408	P4 × 8SW	Screw w/Washer	1E, 2G, 3G, 5I
412	B3 × 8CR	Screw	2C, 3K, 6I
414	1781	Rivet, Plastic	6G, 7H, 8F
416	B3 × 8TTB-2	Tapping Screw, Type 2	5A, 7D

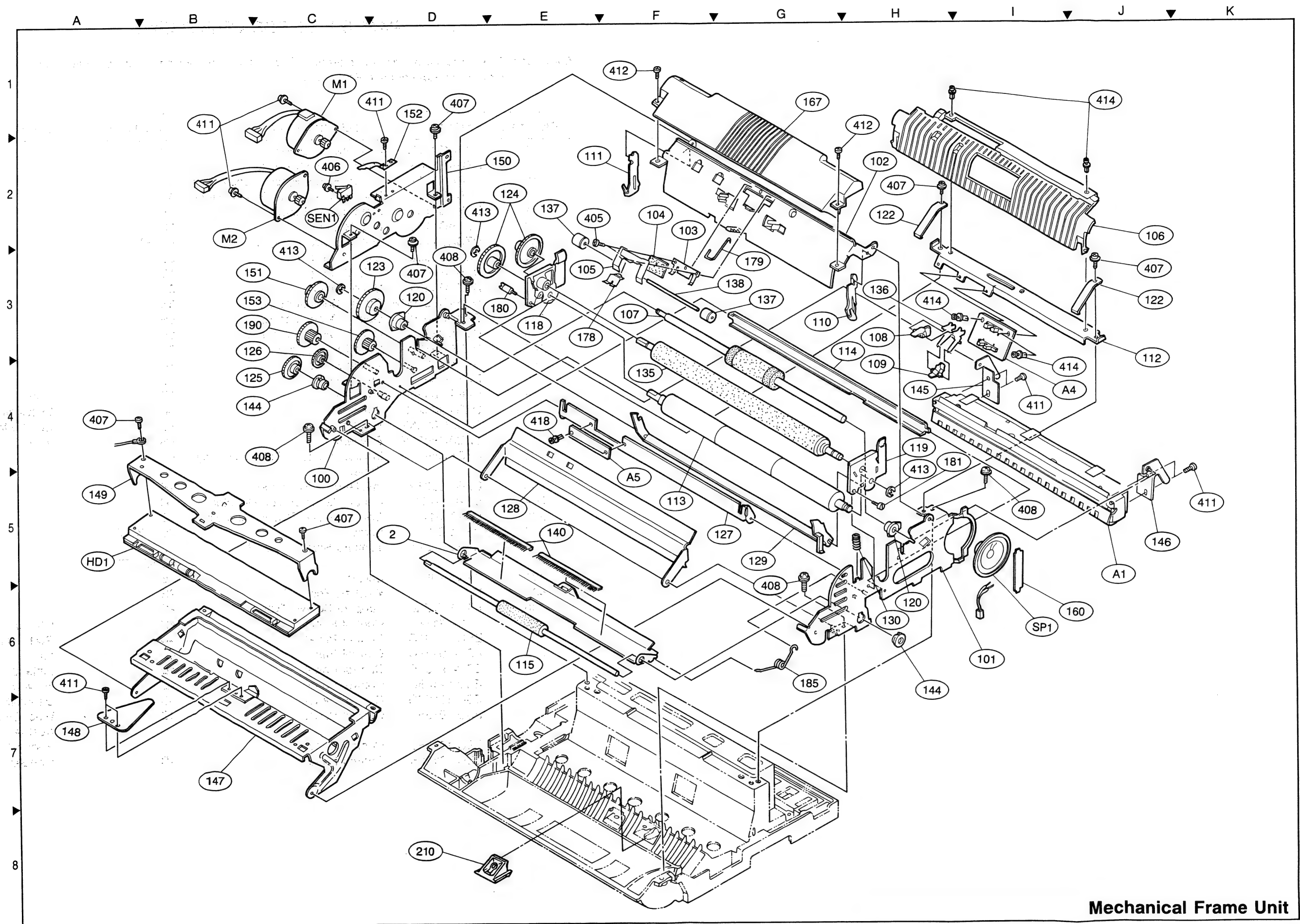


PARTS LIST FOR MECHANICAL FRAME UNIT

CAUTION: This parts list is only for reference. Don't order any service parts from this. Please order them from Maintenance Parts List.

REF. NO.	PART NO.	DESCRIPTION	LOCATION
2	DZBAG1166	Guide Plate, Eject, Transmitting	5D
100	DZBAG1162A	Side Plate (L)	5C
101	DZBAG1162B	Side Plate (R)	6I
102	DZBAG1199	Guide, ADF	2H
103	DZBAG1104	Guide Plate, ADF	2F
104	DZBAG1105	Rubber, Separation	2F
105	DZBAG1106	Plate Spring, ADF	3E
106	DZBAG1107	Board, ADF Guide	2J
107	DZBAG1108	Roller, ADF	3F
108	DZBAG1109	Actuator, ADF	3H
109	DZBAG1110	Actuator, Read Point	3H
110	DZBAG1111A	Relieve Plate, Image Sensor (R)	3H
111	DZBAG1111B	Relieve Plate, Image Sensor (L)	2F
112	DZBAG1112	Set Board, ADF Sensor	4J
113	DZBAG1113	Roller, Feed, Transmitting	5F
114	DZBAG1165	Stay, Transmitting	3H
115	DZBAG1116	Roller, Eject, Transmitting	6E
118	DZBAG1119A	Pillow, Head Roller (L)	3E
119	DZBAG1119B	Pillow, Head Roller (R)	4H
120	DZBAG1120	Pillow D8	3D, 6H
122	DZBAG1186	Spring Plate, Image, Sensor	2H, 3J
123	DZBAG1128	Gear, ADF	3D
124	DZBAG1129	Gear, Feed	2E
125	DZBAG1130	Gear, Eject, Transmitting	4C
126	DZBAG1131	Idler Gear, Eject, Transmitting	3C
127	DZBAG1168	Set Board, PSA Sensor	5G
128	DZBAG1169	Guide Plate, Recording Paper	5E
129	DZBAG1135	Latch	5G
130	DZBAG1136	Spring, Latch	6H
135	DZBAG1141	Roller, Head	4F
136	DZBAG1142	Set Plate, ADF Actuator	3H
137	DZBAG1172	Roller, Pinch, ADF	2E, 3G
138	DZBAG1145	Shaft, Pinch Roller, ADF	3G
140	DZBAG1148	Antistatic Brush, Transmitting	5E
144	BAB1113	Pillow D6	4C, 6H
145	DZBAG1182	Arm, Image Sensor (L)	4H
146	DZBAG1183	Arm, Image Sensor (R)	5J
147	DZBAG1305	Chassis, Receiving	7B
148	DZBAG1307	Plate Spring, Head	7A
149	DZBAG1303	Set Board, Head	5A
150	DZBAG1405	Set Board, Motor	2E
151	DZBAG1402	Idler, Gear, ADF	3C
152	DZBAG1403	Pressure Plate, Micro, Switch	1D
153	BF1028	Gear, Idle, Motor	3C
160	U400-6-06	Set Plate, Speaker	6J
167	DZBAG8559	Cover, ADF	1G

REF. NO.	PART NO.	DESCRIPTION	LOCATION	COUNTRY
178	DZBAG1151	Guide Plate, Separation	3E	
179	DZBAG1152	Spring Wire, Separation	3G	
180	DZBAG1174L	Screw, Stopper, L	3E	
181	DZBAG1174R	Screw, Stopper, R	4I	
185	DZBAG1125	Coil Spring, Guide Plate, RX paper	6G	
210	DZBAG1204	Case, Stamp	8D	
190	DZBAG1404	Gear, Idle, Receiving	3C	
405	P2 × 4SMW	Screw w/Washer	2E	
406	P2 × 10SMW	Screw w/Washer	2C	
407	P3 × 8SMW	Screw w/Washer	1D, 3D, 2H, 3J 4A, 5C	
408	P4 × 8SW	Screw w/Washer	3D, 4C, 5G, 5I	
411	B3 × 6TTS	Tapping Screw	1D, 2B, 6A	
412	B3 × 8CR	Screw	1F, 2H	
413	JE-4	Retaining Ring, E-type	2D, 5H	
414	1781	Rivet, Plastic	1J, 3I, 4J	
418	1027	Rivet, Plastic	4E	
A1	DWPCA4014	Image Sensor	5J	
A4	DZYCA0302	PC Board w/Component, DOC	4J	
A5	DZYCA0316	PC Board w/Component, PSA	4F	Others
	DZYCA0316A	PC Board w/Component, PSA	4F	West Germany
HD1	KF2008-EH	Thermal Recording Head	5A	
M1	42SPM-24DCA2	DC Motor, 0.9W (T.PM)	1C	
M2	42SPM-24DCA1	DC Motor, 0.8W (R.PM)	2B	
SEN1	SS-01GL13T	Micro Switch	2C	
SP1	EAS4P15SA	Speaker	6J	

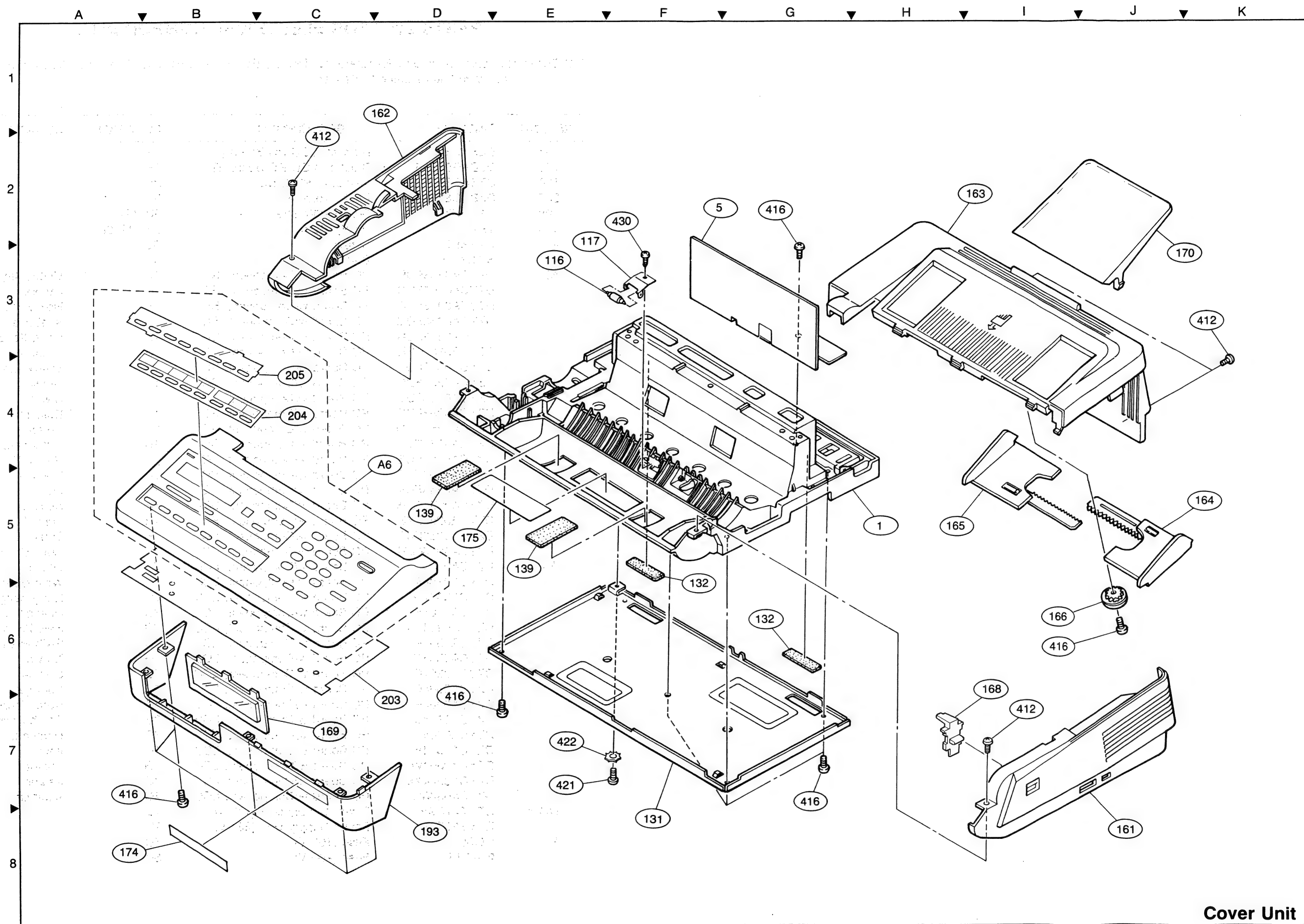


Mechanical Frame Unit

PARTS LIST FOR COVER UNIT

CAUTION: This parts list is only for reference. Don't order any service parts from this. Please order them from Maintenance Parts List.

REF. NO.	PART NO.	DESCRIPTION	LOCATION	COUNTRY
1	DZBAG0122A	Base Ass'y, Lower	5H	
5	DZBAG8208	Plate, Steel Shielding	2F	
116	DZBAG1117	Roller, Pinch, Eject, Transmitting	3E	
117	DZBAG1118	Spring Plate, Eject, Transmitting	3E	
131	DZBAG1180	Plate, Steel Bottom	8F	
132	DZBAG1138	Leg, Rubber	6G	
139	DZBAG1173	Mat, Recording Paper	5D, 5E	
161	DZBAG8632	Side Cover (R)	8J	
162	DZBAG8631	Side Cover (L)	1D	
163	DZBAG8639	Upper Cover	2I	
164	DZBAG8610RW	Guide, Document (R)	5K	
165	DZBAG8610LW	Guide, Document (L)	5H	
166	DZBAG8558	Gear, Guide, Document	5I	
168	DZBAG8633	Push Button, Latch	6I	
169	DZBAG8635	Window, Paper	7C	
170	DZBAG8641	Sub Tray	2J	
174	DZBAG8926C	Emblem	8B	Others
	DZBAG8926L	Emblem	8B	Switzerland
	DZBAG8926S	Emblem	8B	South Africa
	DZBAG8926V	Emblem	8B	Italy
175	DZBAG8916	Indication Label, Set, Recording Paper	5E	
203	DZBAG8219	Insulator, PVC, Panel	4B	
204	U19LB915A	Sheet, Paper Station Directory	4C	
205	U19ST914	Cover, Plastic Station Directory	4C	
412	B3 × 8CR	Screw	2C, 3K, 6I	
416	B3 × 8TTB-2	Tapping Screw, Type 2	2G, 6I, 6D, 7B	
421	B4 × 10NI	Screw	7E	
422	M4	Washer, Toothed	7E	
430	B3 × 5TTB-2	Tapping Screw, Type 2	2F	
A6	ESU-19138	Control Panel	4D	Others
	ESU-19138C	Control Panel	4D	Switzerland
	ESU-19138D	Control Panel	4D	Italy
	ESU-19138E	Control Panel	4D	Finland
	ESU-19138F	Control Panel	4D	Norway
	ESU-19138G	Control Panel	4D	Denmark
	ESU-19138H	Control Panel	4D	West Germany,
				Austria
	ESU-19138J	Control Panel	4D	Portugal
	ESU-19138K	Control Panel	4D	Sweden

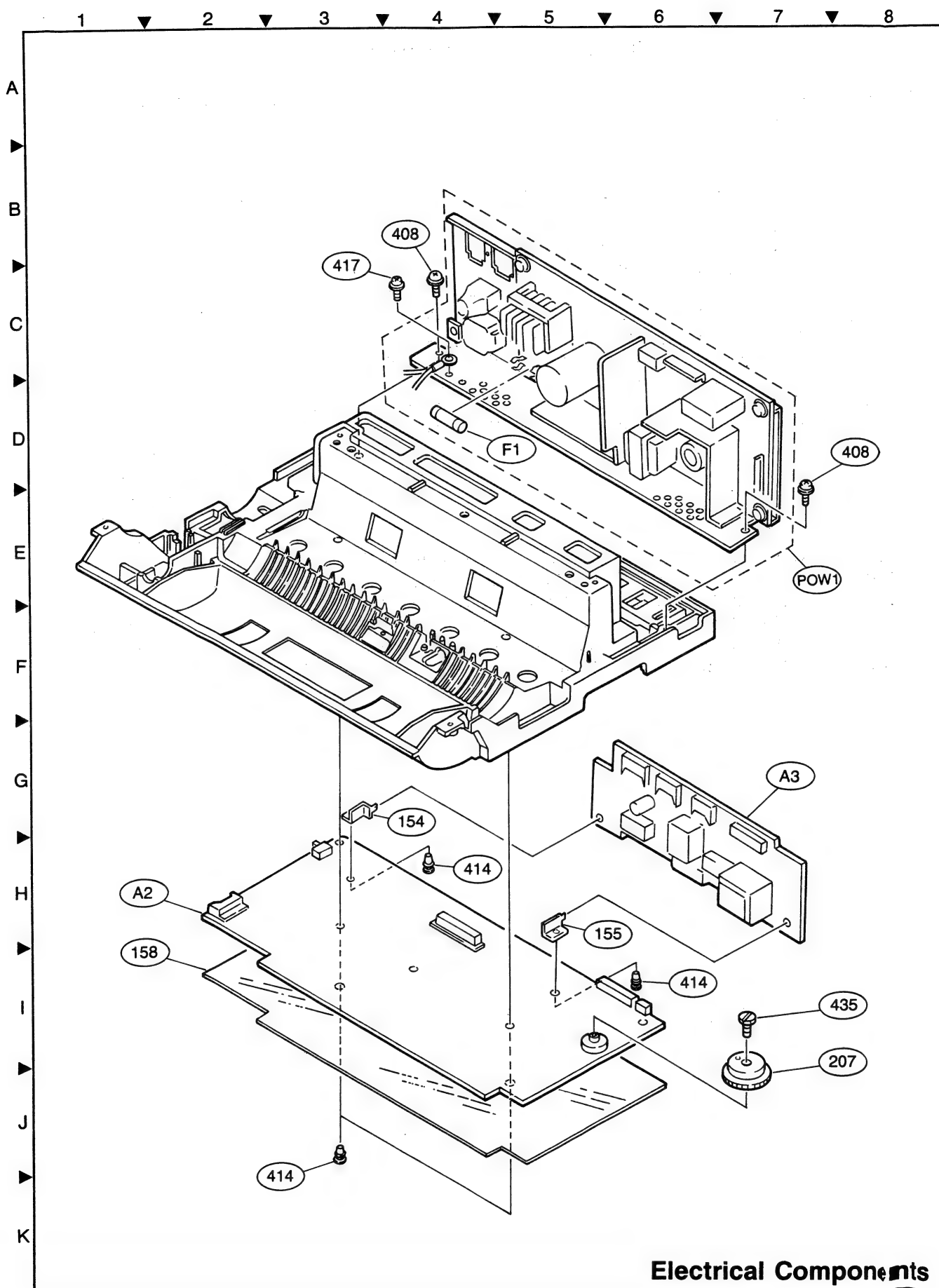


Cover Unit

PARTS LIST FOR ELECTRICAL COMPONENTS

CAUTION: This parts list is only for reference. Don't order any service parts from this. Please order them from Maintenance Parts List.

REF. NO.	PART NO.	DESCRIPTION	LOCATION	COUNTRY
154	DZBAG8201L	Bracket, LCU PC Board (L)	4G	
155	DZBAG8201R	Bracket, LCU PC Board (R)	6H	
158	DZBAG8214	Insulator, PVC, SC	2I	
207	DZBAG8206	Knob, Volume	8J	
408	P4 × 8SW	Screw w/Washer	3B, 8D	
414	1781	Rivet, Plastic	3J, 4H, 6I	
417	B4 × 6NI	Screw	3C	
435	BS1.7 × 3	Bolt	8I	
A2	DZYCA0353FDB	PC Board w/Component, SC	1H	United Kingdom
	DZYCA0353FDC	PC Board w/Component, SC	1H	Others
	DZYCA0353FDF	PC Board w/Component, SC	1H	New Zealand
	DZYCA0353FDG	PC Board w/Component, SC	1H	Australia
	DZYCA0353FDH	PC Board w/Component, SC	1H	Hong Kong
	DZYCA0353FDK	PC Board w/Component, SC	1H	Finland
	DZYCA0353FDL	PC Board w/Component, SC	1H	Switzerland
	DZYCA0353FDN	PC Board w/Component, SC	1H	Norway
	DZYCA0353FDO	PC Board w/Component, SC	1H	Sweden
	DZYCA0353FDP	PC Board w/Component, SC	1H	Belgium
	DZYCA0353FDQ	PC Board w/Component, SC	1H	Portugal
	DZYCA0353RDR	PC Board w/Component, SC	1H	Netherlands
	DZYCA0353FDS	PC Board w/Component, SC	1H	South Africa
	DZYCA0353FDT	PC Board w/Component, SC	1H	Denmark
	DZYCA0353FDV	PC Board w/Component, SC	1H	Italy
	DZYCA0353FDW	PC Board w/Component, SC	1H	Austria
	DZYCA0353FXB	PC Board w/Component, SC	1H	Ireland
	DZYCA0353FXT	PC Board w/Component, SC	1H	Turkey
	DZYCA0353GDA	PC Board w/Component, SC	1H	West Germany
A3	DZYCA0304	PC Board w/Component, LCU	7G	Others
	DZYCA0304A	PC Board w/Component, LCU	7G	West Germany
	DZYCA0304H	PC Board w/Component, LCU	7G	Hong Kong
	DZYCA0304E	PC Board w/Component, LCU	7G	United Kingdom
	DZYCA0304FA	PC Board w/Component, LCU	7G	New Zealand
	DZYCA0304M	PC Board w/Component, LCU	7G	Switzerland
	DZYCA0304N	PC Board w/Component, LCU	7G	Norway
	DZYCA0304O	PC Board w/Component, LCU	7G	Sweden
	DZYCA0304Q	PC Board w/Component, LCU	7G	Portugal
	DZYCA0304RA	PC Board w/Component, LCU	7G	Netherlands
	DZYCA0304S	PC Board w/Component, LCU	7G	South Africa
	DZYCA0304T	PC Board w/Component, LCU	7G	Denmark
	DZYCA0304V	PC Board w/Component, LCU	7G	Italy
	DZYCA0304W	PC Board w/Component, LCU	7G	Austria
	DZYCA0304XB	PC Board w/Component, LCU	7G	Ireland
	DZYCA0306G	PC Board w/Component, LCU	7G	Australia
DOW1	ETX-827D9A	Power Supply Unit (100 V)	7E	
	ETX-827D9E	Power Supply Unit (200 V)	7E	
F1	GGS5	Fuse (100 V)	5D	
	2183.15	Fuse (200 V)	5D	

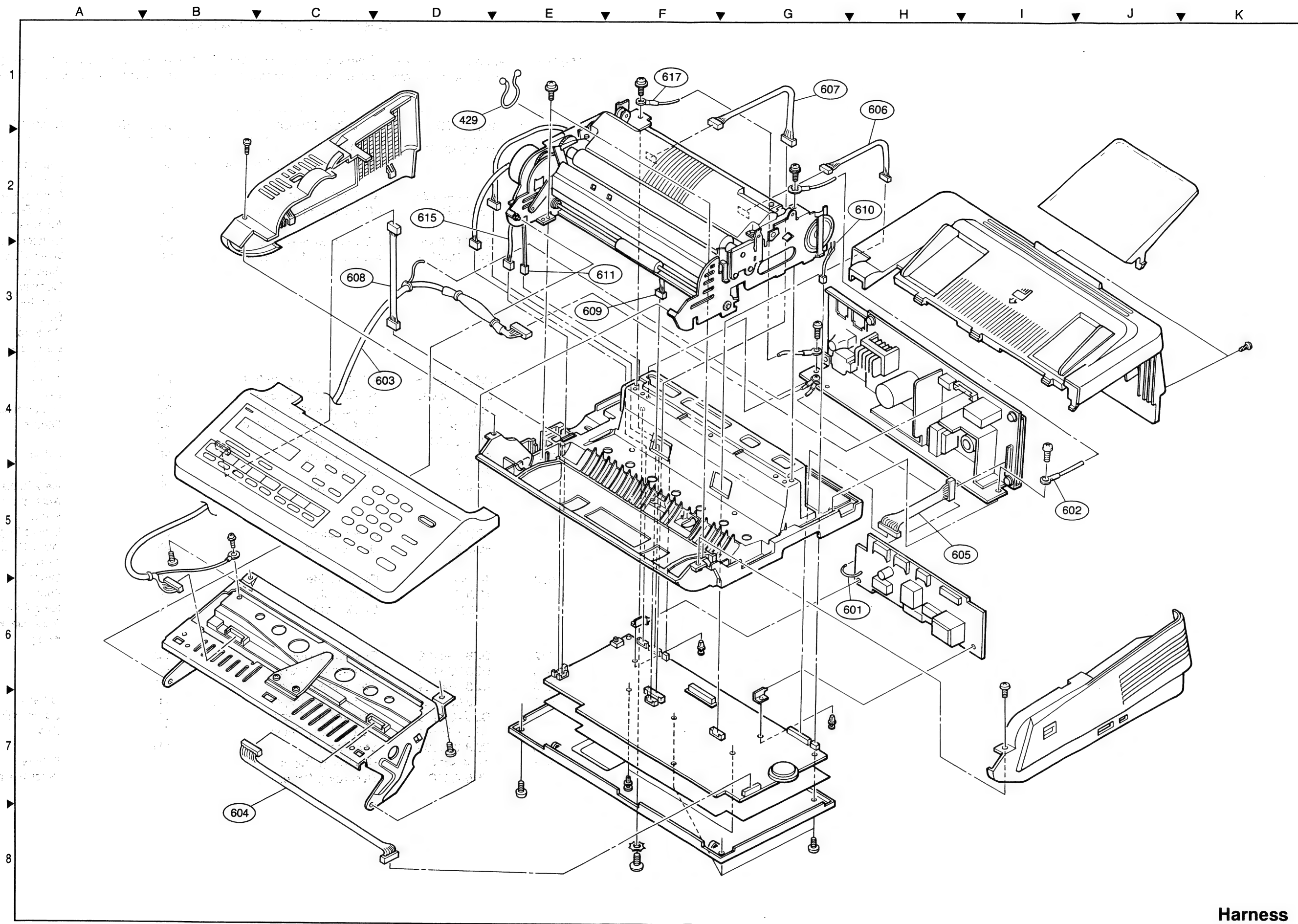


Electrical Components

PARTS LIST FOR HARNESS

CAUTION: This parts list is only for reference. Don't order any service parts from this. Please order them from Maintenance Parts List.

REF. NO.	PART NO.	DESCRIPTION	LOCATION	COUNTRY
429	176	Purse Lock	1D	
601	DZBAG8725	Lead Wire w/Plug, FG1	6H	
602	DZBAG8726	Lead Wire w/Plug, FG2	5J	
603	DZBAG8727	Connector Cord w/Plug, 150V, THV	4C	
604	DZBAG8728	Connector Cord w/Plug, 300V, THC	8B	
605	DZBAG8729	Connector Cord w/Plug, 300V, DC	5I	
606	DZBAG8706	Connector Cord w/Plug, 300V, IMV	1H	
607	DZBAG8740	Connector Cord w/Plug, 300V, IMC	1H	
608	DZBAG8708	Connector Cord w/Plug, 150 V, PAN	3C	Others
	DZBAG8743	Connector Cord w/Plug, 150 V, PAN	3C	West Germany,
				United
				Kingdom
				New Zealand,
				Switzerland,
				Netherlands
609	DZBAG8733	Connector Cord w/Plug, 300V, DOC	3F	
610	DZBAG8734	Connector Cord w/Plug, 300V, SP	2H	
611	DZBAG8735	Connector Cord w/Plug, 300V, SU	3E	
615	DZBAG8710	Connector Cord w/Plug, 300 V, PSA	2D	West Germany
	DZBAG8736	Connector Cord w/Plug, 300 V, PS	2D	Others
617	DZBAG8738	Lead Wire w/Plug, FG4	1F	



Harness

PARTS LIST FOR PACKING

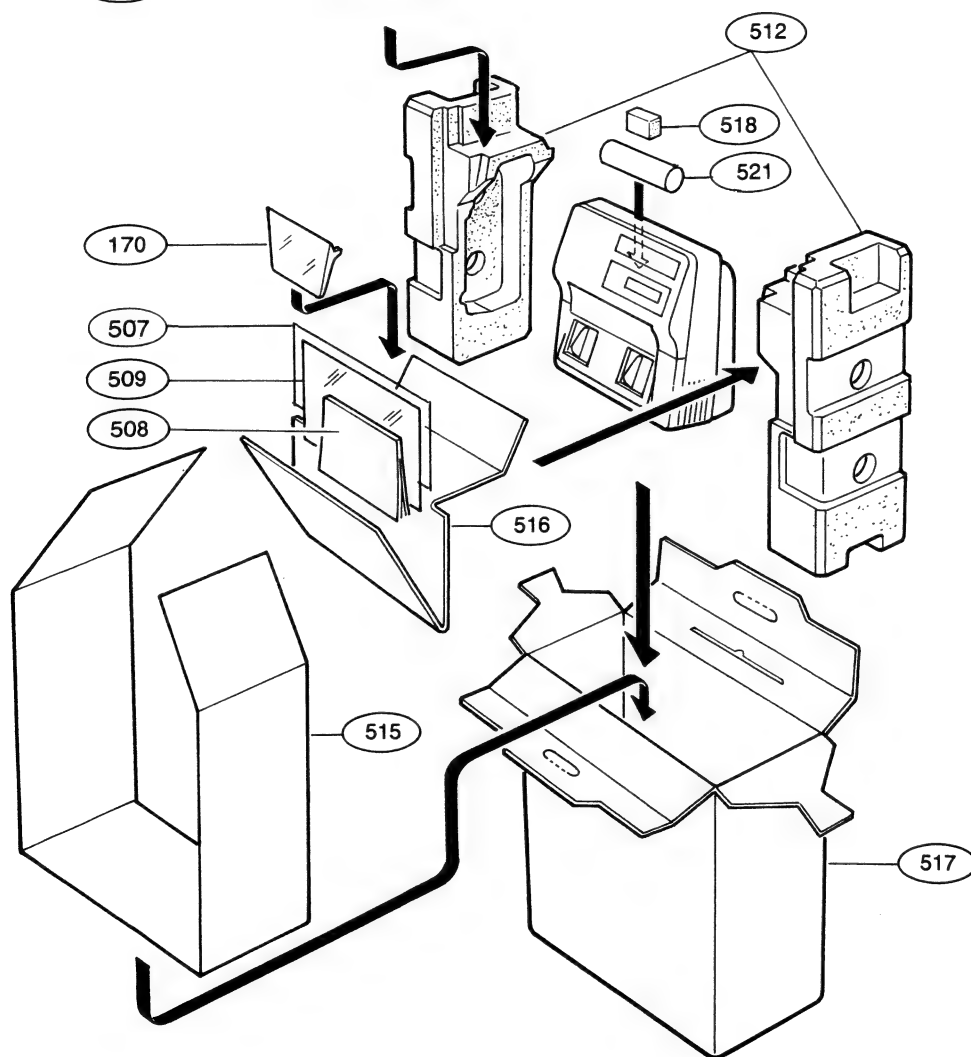
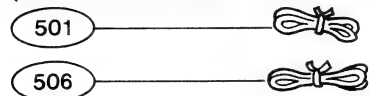
CAUTION: This parts list is only for reference. Parts Number, Price and Availability subject to change without notice. Please contact your dealership for the current information on parts orders.

REF. NO.	PART NO.	DESCRIPTION	LOCATION	COUNTRY
170	DZBAG8641	Sub Tray	2E	
501		Connector Cord w/Plug, DC48 V	2C	depends upon Country
506	VM0309-0081-3	AC Cord w/Plug, 240 V	2C	Netherlands
	DZZSP32033	AC Cord w/Plug, 240 V	2C	New Zealand, Australia
	DZZSP32036	AC Cord w/Plug, 240 V	2C	Switzerland
	DZZSP32031	AC Cord w/Plug, 240 V	2C	West Germany, Finland, Norway, Sweden, Belgium, Portugal, Denmark, Austria
	DZZSP32035	AC Cord w/Plug, 240 V	2C	Taiwan
	DZZSP32049	AC Cord w/Plug, 240 V	2C	Italy
	VM0113-2	AC Cord w/Plug, 240 V	2C	United Kingdom
	VM0113-2.5	AC Cord w/Plug, 240 V	2C	Others
507	AM1921A4	Carrier, Document, A4	2E	
508	4B285	User's Guide	2F	Others
	4B287	User's Guide	2F	Italy
	4B322	User's Guide	2F	New Zealand, Australia, Hong Kong
	4B324	User's Guide	2F	United Kingdom
	4B325	User's Guide	2F	West Germany, Austria
509	4B286	Quick Guide	2F	Others
	4B288	Quick Guide	2F	Italy
	4B323	Quick Guide	2F	New Zealand, Australia, Hong Kong
512	DZBAG4122	Cushion Styrofoam	6D	
515	DZBAG4123	Corrugated Paper	4H	
516	DZBAG4124	Corrugated Paper	5G	
517	DZBAG4121	Carton Box, Paper	7I	Others
	DZBAG4119	Carton Box, Paper	7I	South Africa
	DZBAG4141	Carton Box, Paper	7I	Italy
518	DZBAG4135	Styrofoam	6D	
521	THM-331C	Recording Paper		Others
	THM-331D	Recording Paper		West Germany

1 2 3 4 5 6 7 8

A
B
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G
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K

Connector Cord
(Connected machine at factory)



Packing

Chapter 9 ABBREVIATION LIST

CHAPTER 9 ABBREVIATION LIST

CONTENTS

Abbreviation list	9-1
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Abbreviation List

Abbreviation	Function	Signal format
ABC	Automatic Background Control	—
ADF	Automatic Document Feeder	—
AM	Amplitude Modulation	—
AMS	Automatic Mode Selection	—
bps	bit per second	—
CCITT	International Consultative Committee for Telephone and Telegram (Comité Consultatif International Télégraphique et Téléphonique)	—
CED	Called station identification	2100Hz
CFR	Confirmation to Receive	X010 0001 1650Hz
CIG	Calling Subscriber Identification	1000 0010
CNG	Calling Tone	1100Hz for 500ms
CNP	Connector Pin	—
CPU	Central Processing Unit	—
CSI	Called Subscriber Identification	0000 0010
DCN	Disconnect	X101 1111
DCS	Digital Command Signal	X100 0001
DIS	Digital Identification Signal	0000 0001
DOC	Document Sensor	—
DTC	Digital Transmit Command	1000 0001
DTMF	Dual-Tone Multifrequency	—
EOL	End of Line	—
EOM	End of Message	X111 0001 1100Hz
EOP	End of Procedure	X111 0100
EP ROM	Erasable Programmable Read Only Memory	—
EP tone	Echo Protector Tone	1700, 1800Hz
EQL	Equalizer	—

Abbreviation List

30.1 million

Abbreviation	Function	Signal format
FCA	Facsimile Control Adaptor	—
FPA	Facsimile Peripheral Adaptor	—
FSK	Frequency Shift Keying	—
FTT	Failure to Train	—
GC	Group Command	2100Hz for 1.5-10.0s
GI	Group Identification	1850Hz
G2	Group 2	—
G3	Group 3	—
ID	Identification	—
I/O	Input/Output	—
JP	Jamper	—
LCD	Liquid Crystal Display	—
LCS	Line Conditioning Signals	1100Hz
LCU	Line Control Unit	—
LED	Light Emitting Diode	—
LSI	Large Scale Integrated Circuit	—
MCF	Message Confirmation	1650Hz
MH	Modified Huffman (coding scheme)	—
MOS	Metal Oxide Semiconductor	—
FET	Field Effect Transistor	—
MPS	Multi Page Signaling	X111 0010
MPU	Micro Processing Unit	—
MR	Modified READ (coding scheme)	—
MWS	White Line Skip	—
NSC	Non-Standard Facilities Command	1000 0100
NSF	Non-Standard Facilities	0000 0100
NSS	Non-Standard Set-up	X100 0100
PCB	Printed Circuit Board	—
PIN	Procedural Interrupt Negative	X011 0100

Abbreviation List

Abbreviation	Function	Signal format
PIS	Procedure Interrupt Signal	462Hz for 3s
PM	Phase Modulating	—
pps	pulse per second	—
PRI-Q	Procedure Interrupt—EOM	X111 1001
PSA	Paper Sensor	—
PSTN	Public Switched Telephone Network	—
PTT	Postal and Telecommunications Authority (Post, Telegraph & Telephone)	—
QAM	Quadrature Amplitude Modulation	—
RAM	Random Access Memory	—
RH	Relative Humidity	—
ROM	Read Only Memory	—
RPS	Read Point Sensor	—
RTC	Return to Control	—
RTN	Retrain Negative	X011 0010
RTP	Retrain Positive	X011 0011
RX	Receive	—
SC	System Control Unit	—
S/N	Signal/Noise	—
STD	Standard	—
TCF	Training Check	Zeros for 1.5s
TP	Test Pin	—
Tx	Transmit	—
TSI	Transmitting Subscriber Identification	X100 0010
T/M	Transmission Motor	—
VR	Volume/Variable Register	—
VSB	Vestigial Sideband	—